2/13/85

GEORGE BROWN

WOODY VASULKA
RT 6 BOX 100
SANTA FE NM

SINCE OUR CONVERSATION ON SUNDAY,
I HAVE 'UNEARTHED' SOME MULTIKEYER ETCHINGS.
ARE YOU INTERESTED?

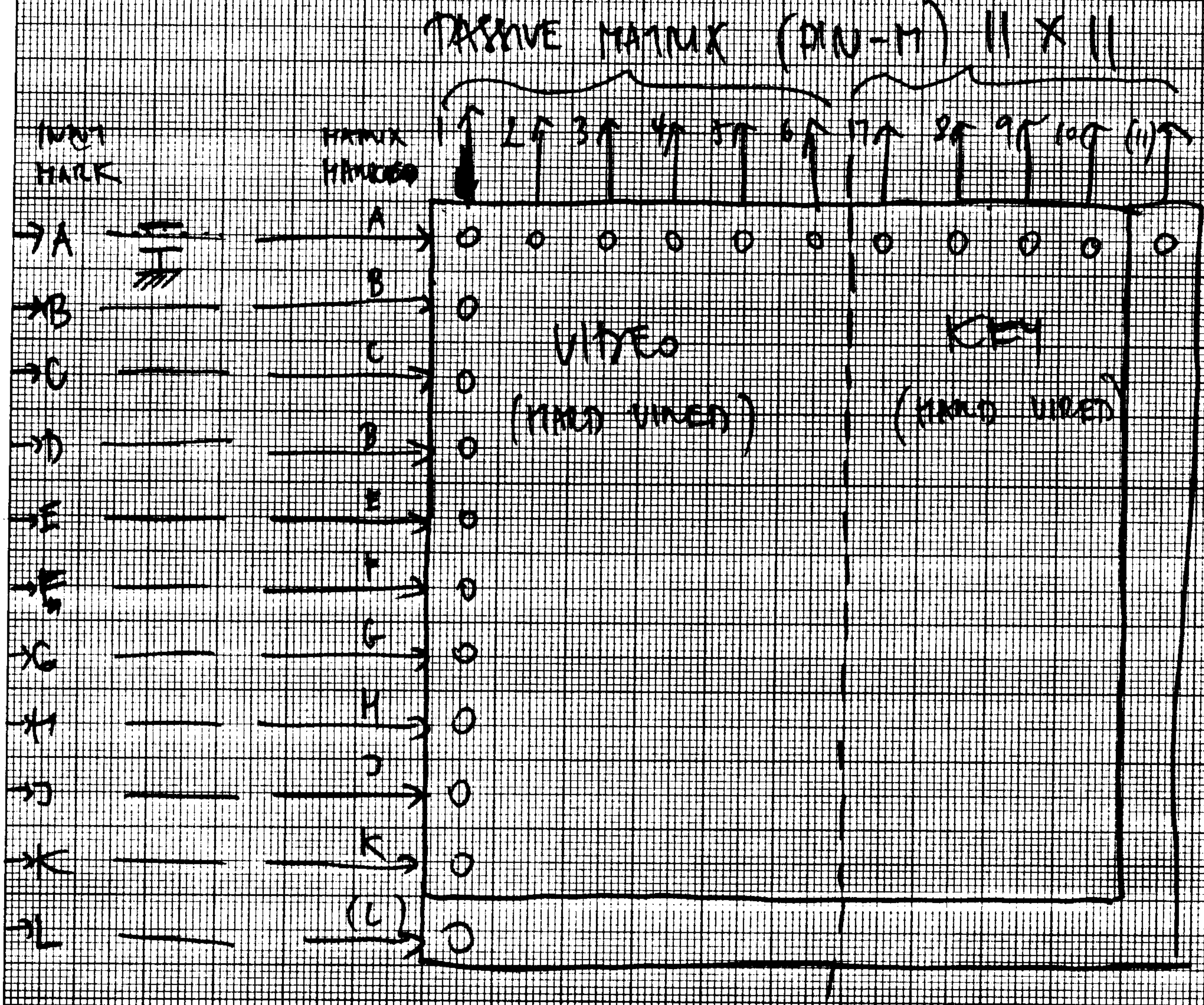
I HAVENCLOSED THE $130 CHECK
WE DISCUSSED.

SAY HI TO STEINA.

YOURS TRUELY
GEORGE

GEORGE BROWN:

VIDEO MULTIKEYER



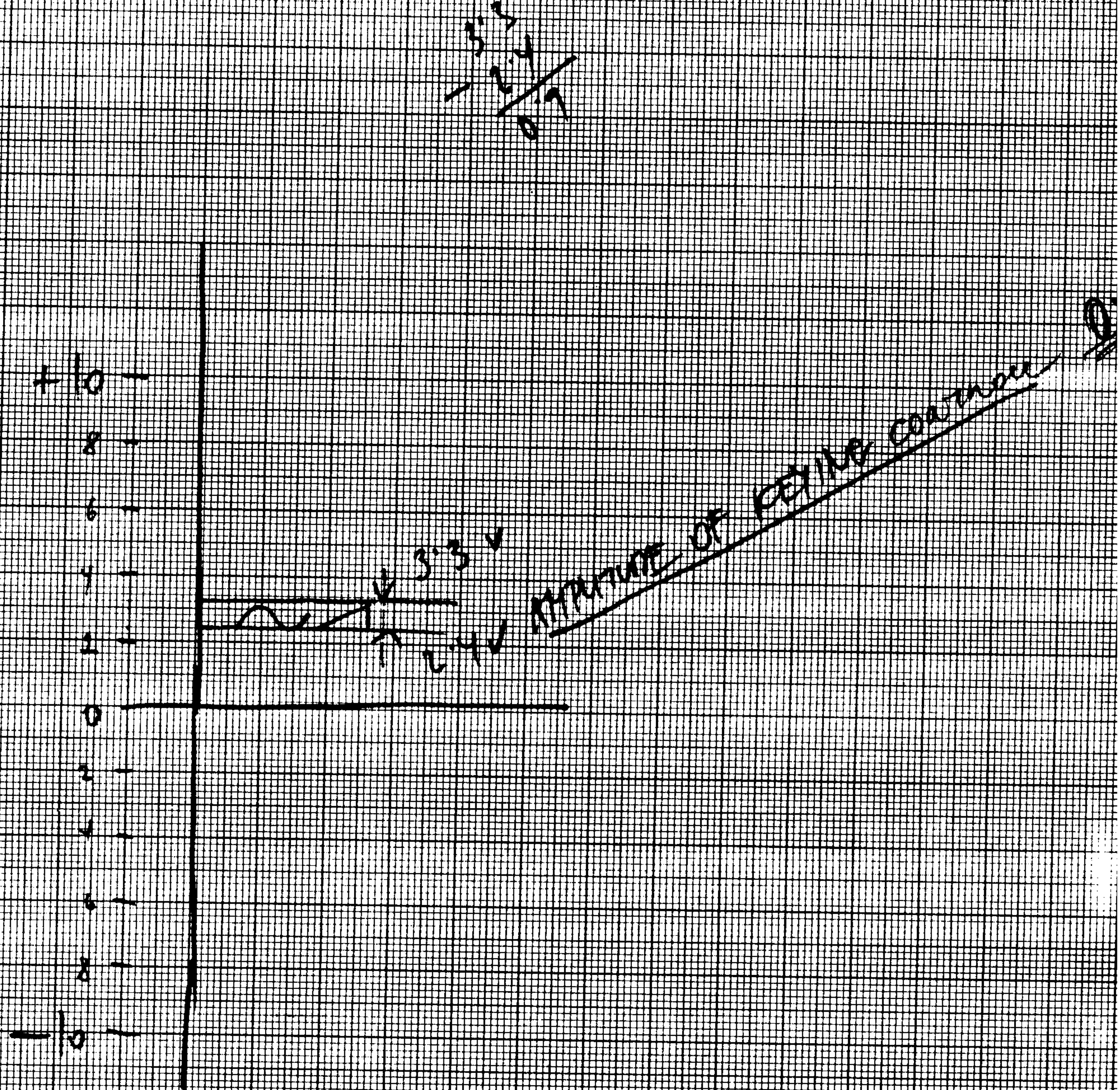
BNC

→ A } EXTERNAL
→ B } TTL INPUTS

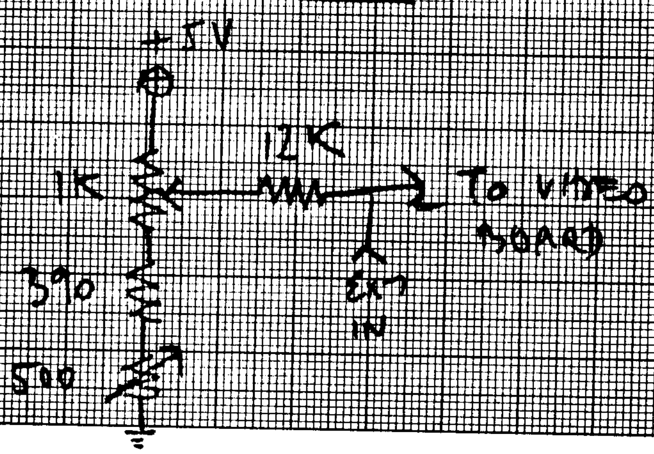
→ SYNC (IN INT. MODE INPUT A VIDEO PROVIDES SYNC)

→ +12 VOLTS

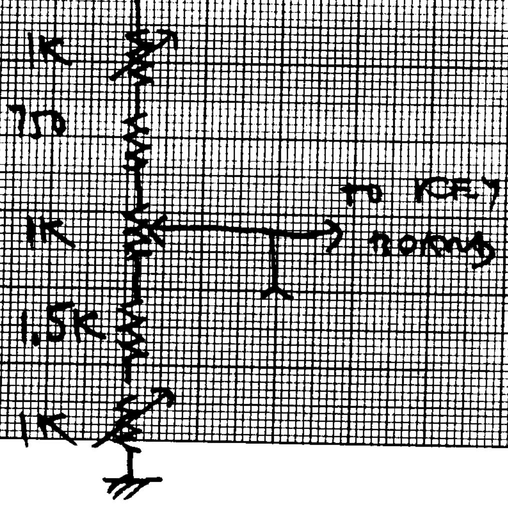
AMPAD. NO. 575
10 X 10 TO THE CENTIMETER
MADE IN U. S. A.



VIDEO LEVEL:



KEY LEVEL:



AMPAD No. 675
10 X 10 TO THE CENTIMETER
MADE IN U. S. A.

the vasulkas
video producers
111 east 14 st., nyc 10003
(212)473-2054

C O K

1 · 2 · 3 · 4
2 · 1 · 3 · 4
3 · 2 · 1 · 4
4 · 3 · 2 · 1

4 · 3 · 2 · 1
4 · 2 · 3 · 1
4 · 1 · 3 · 2
4 · 3 · 1 · 2
4 · 2 · 1 · 3
4 · 1 · 2 · 3

4)

4 · 3 · 2 · 1 OK
4 · 3 · 1 · 2 NG
4 · 2 · 1 · 3 NG
4 · 2 · 3 · 1 OK
4 · 1 · 2 · 3 NG
4 · 1 · 3 · 2 NG

1)

1 · 2 · 3 · 4 OK
1 · 2 · 4 · 3 OK
1 · 3 · 4 · 2 NG
1 · 3 · 2 · 4 OK
1 · 4 · 3 · 2 OK
1 · 4 · 2 · 3 NG

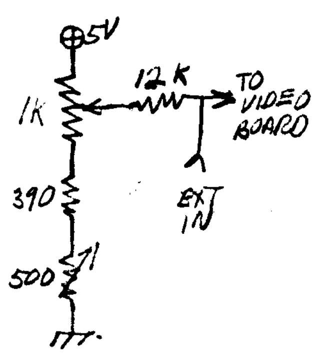
2

2 · 1 · 3 · 4 OK
2 · 1 · 4 · 3 OK
2 · 3 · 4 · 1 NG
2 · 3 · 1 · 4 NG
2 · 4 · 3 · 1 NG
2 · 4 · 1 · 3 NG

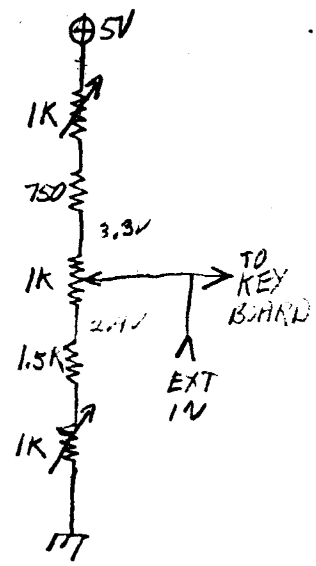
3)

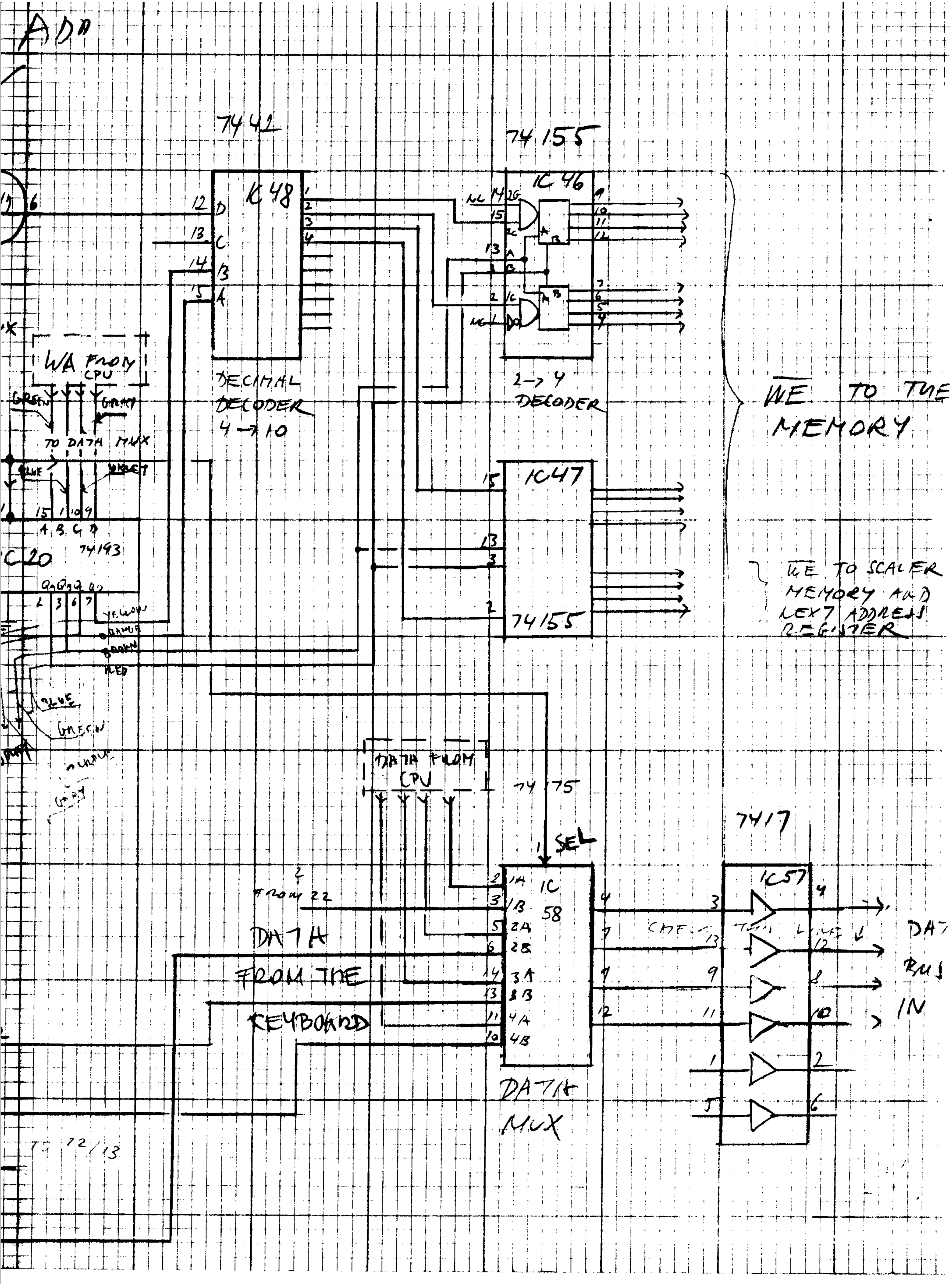
3 · 2 · 1 · 4 OK
3 · 2 · 4 · 1 NG
3 · 1 · 4 · 2 NG
3 · 1 · 2 · 4 N
3 · 4 · 2 · 1 NG
3 · 4 · 1 · 2 O

VIDEO LEVEL



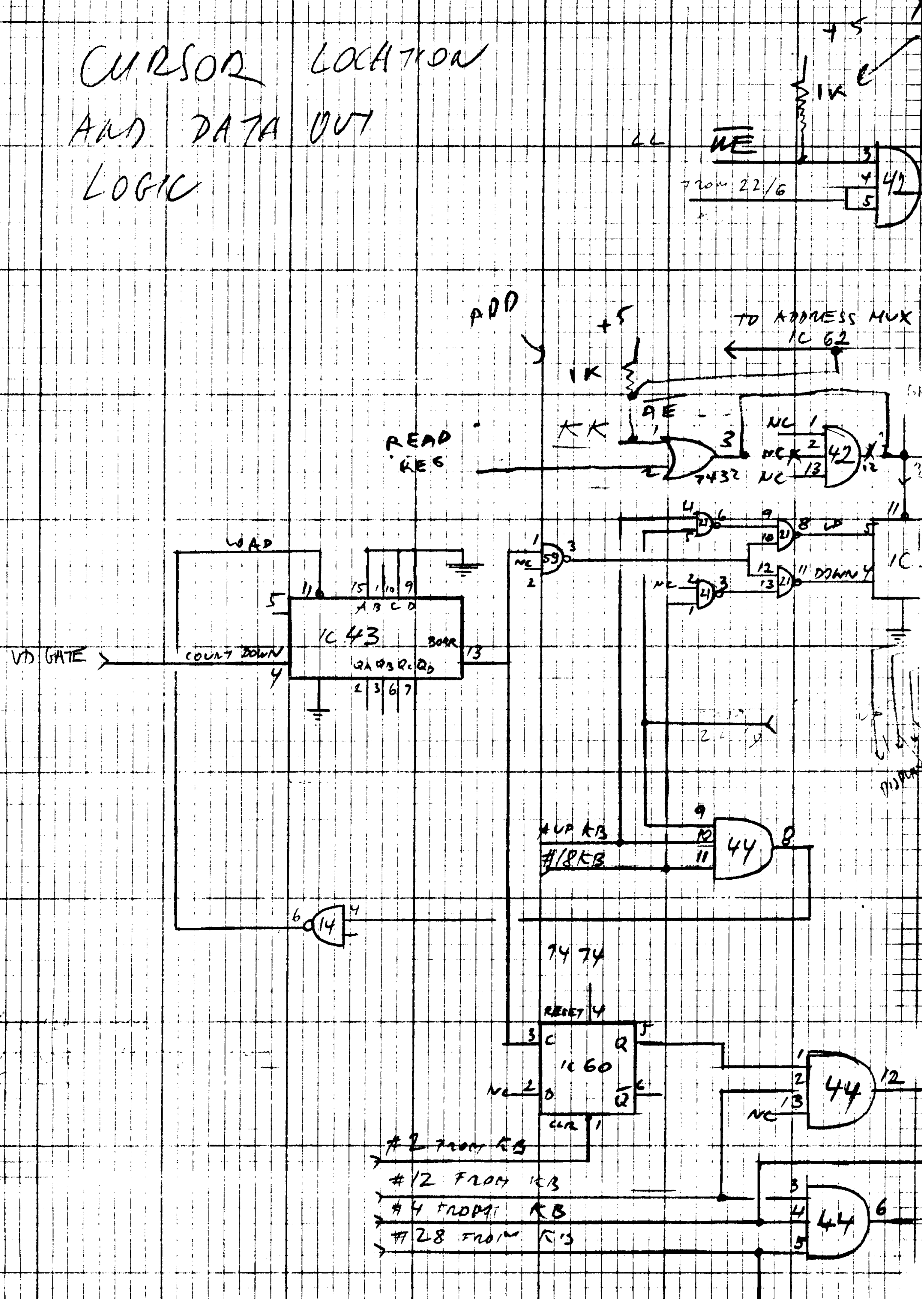
KEY LEVEL

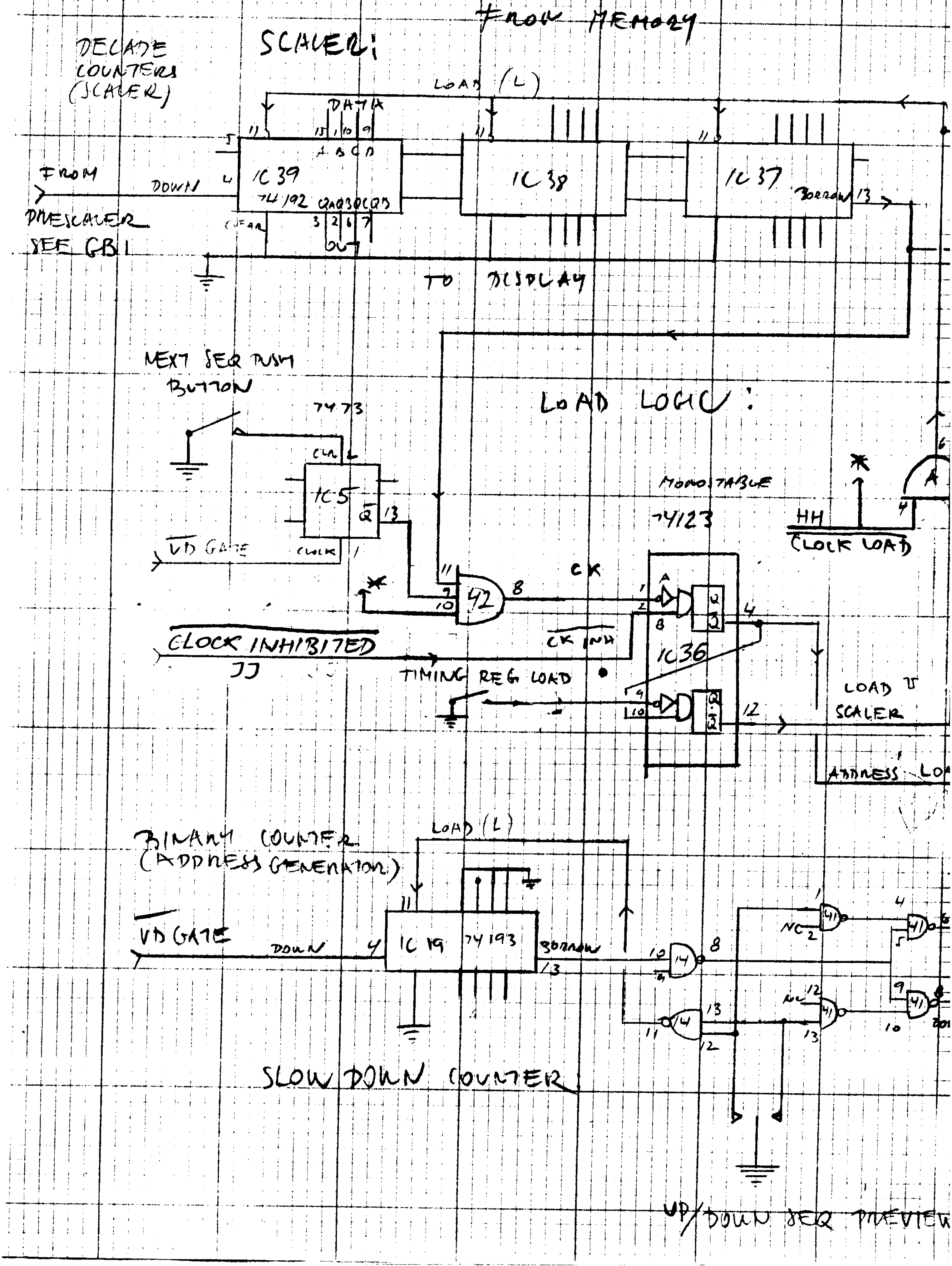


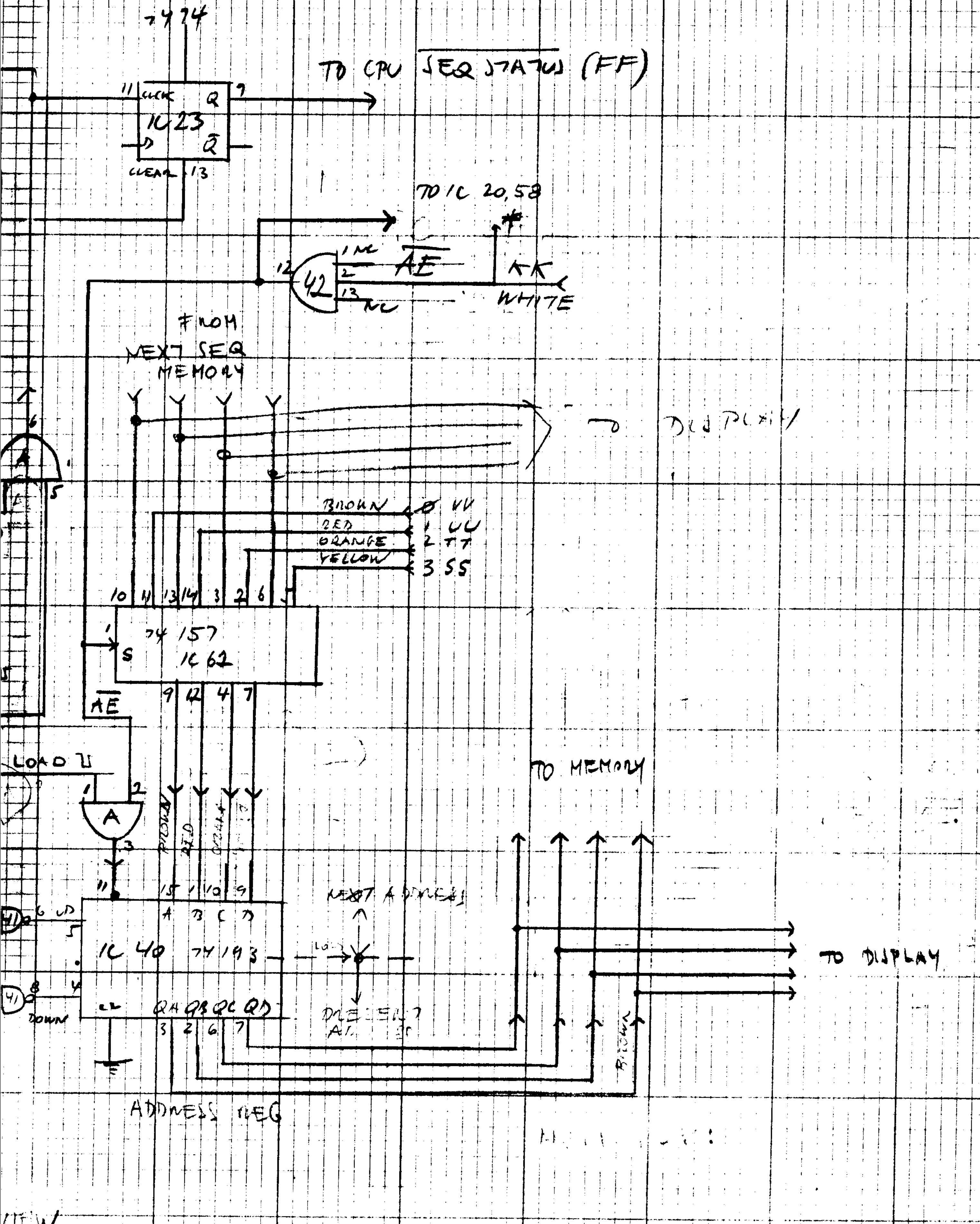


ADD
7442
IC 48
DECIMAL DECODER 4→10
74155
IC 46
2→4 DECODER
WE TO THE MEMORY
IC47
74155
WE TO SCALER MEMORY AND NEXT ADDRESS REGISTER
WA FROM CPU
TO DATA MUX
74193
IC20
DATA FROM CPU
74175
SEL
IC 58
DATA FROM THE KEYBOARD
DATA MUX
7417
IC57
FROM 22

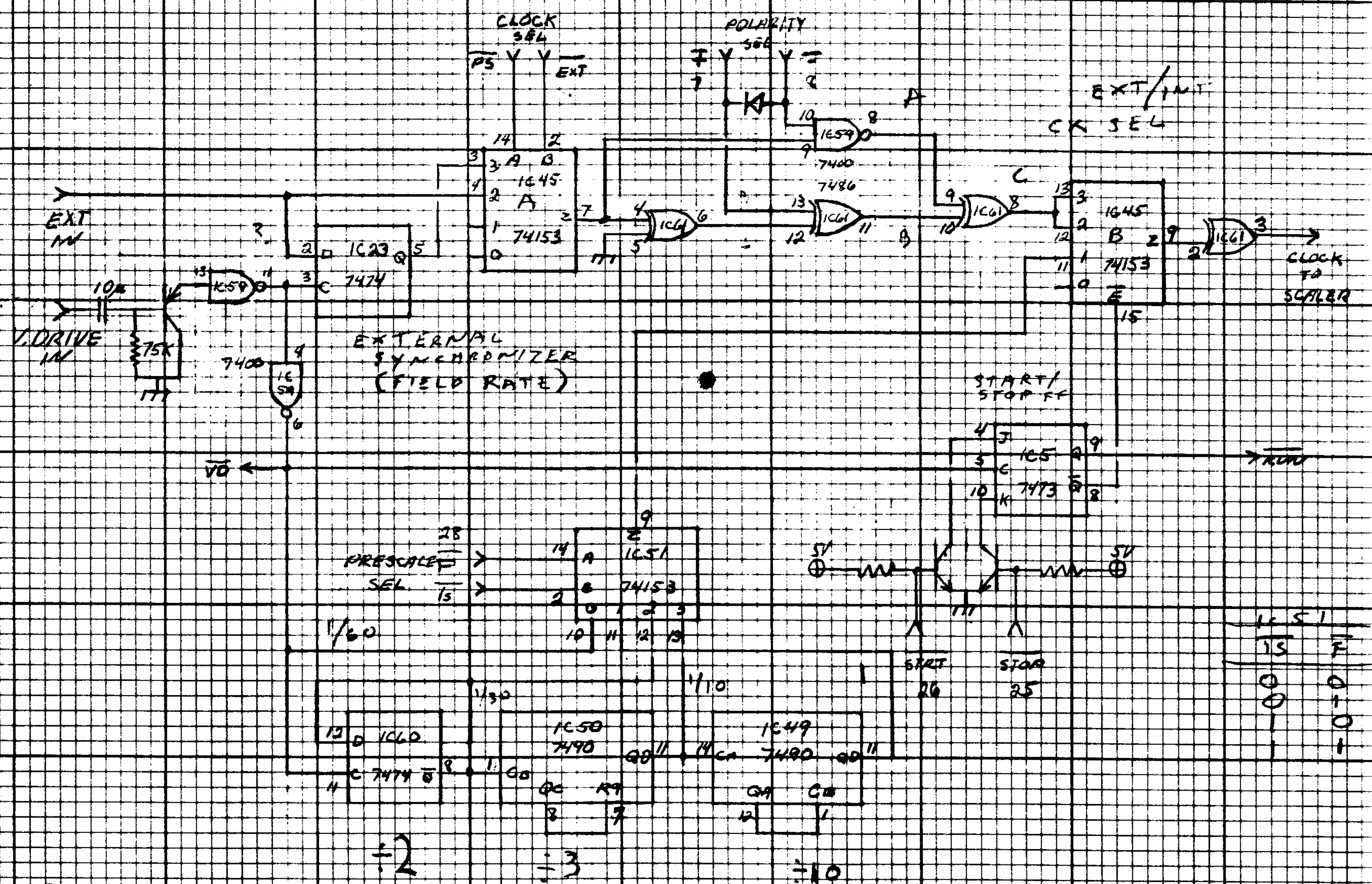
CURSOR LOCATION AND DATA OUT LOGIC




FROM MEMORY
DECADE COUNTERS (SCALER)
SCALER:
LOAD (L)
DATA
IC 39
74192
IC 38
IC 37
BORROW
FROM PRESCALER SEE GB1
DOWN
CLEAR
OUT
TO DISPLAY
NEXT SEQ PUSH BUTTON
7473
IC5
LOAD LOGIC:
MONOSTABLE
74123
HH
CLOCK LOAD
CK
VD GATE
CLOCK
42
CLOCK INHIBITED
JJ
CK INH
IC36
TIMING REG LOAD
LOAD SCALER
ADDRESS
BINARY COUNTER (ADDRESS GENERATOR)
LOAD (L)
IC 19
74193
VD GATE
DOWN
BORROW
NC
SLOW DOWN COUNTER
UP/DOWN SEQ PREVIEW



74 74
IC 23
CLOCK
Q
D
CLEAR
TO CPU SEQ STATUS (FF)
TO IC 20, 58
42
AE
WHITE
FROM NEXT SEQ MEMORY
TO DISPLAY
BROWN
RED
ORANGE
YELLOW
74 157
IC 62
S
AE
LOAD
A
IC 40
74 193
QA QB QC QD
DOWN
TO MEMORY
NEXT ADDRESS
TO DISPLAY
ADDRESS REG



IC51 TS	F	FREQ. SECONDS
0	0	1/60
0	1	1
1	0	1/30
1	1	1/10

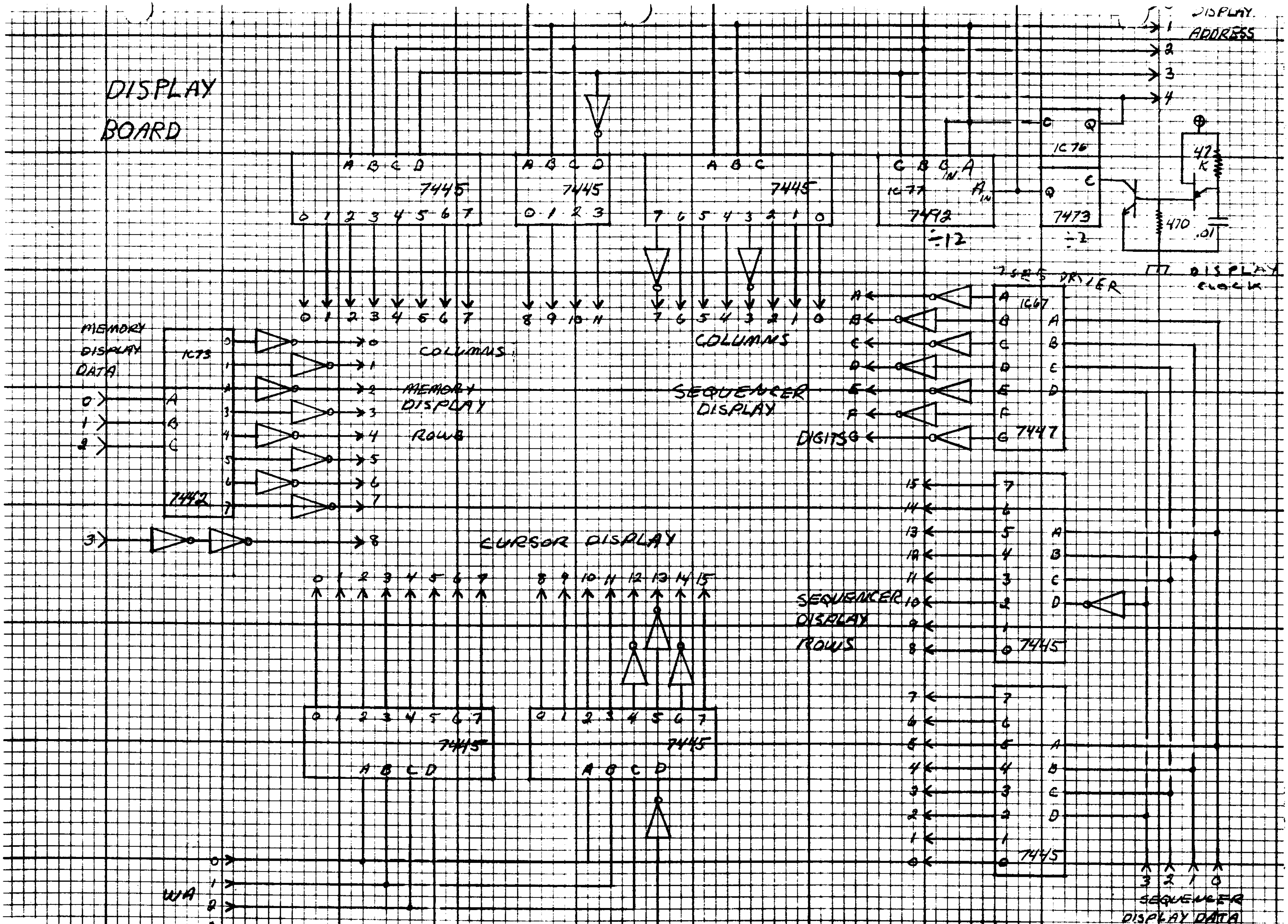
CLOCK AND PRESCALER

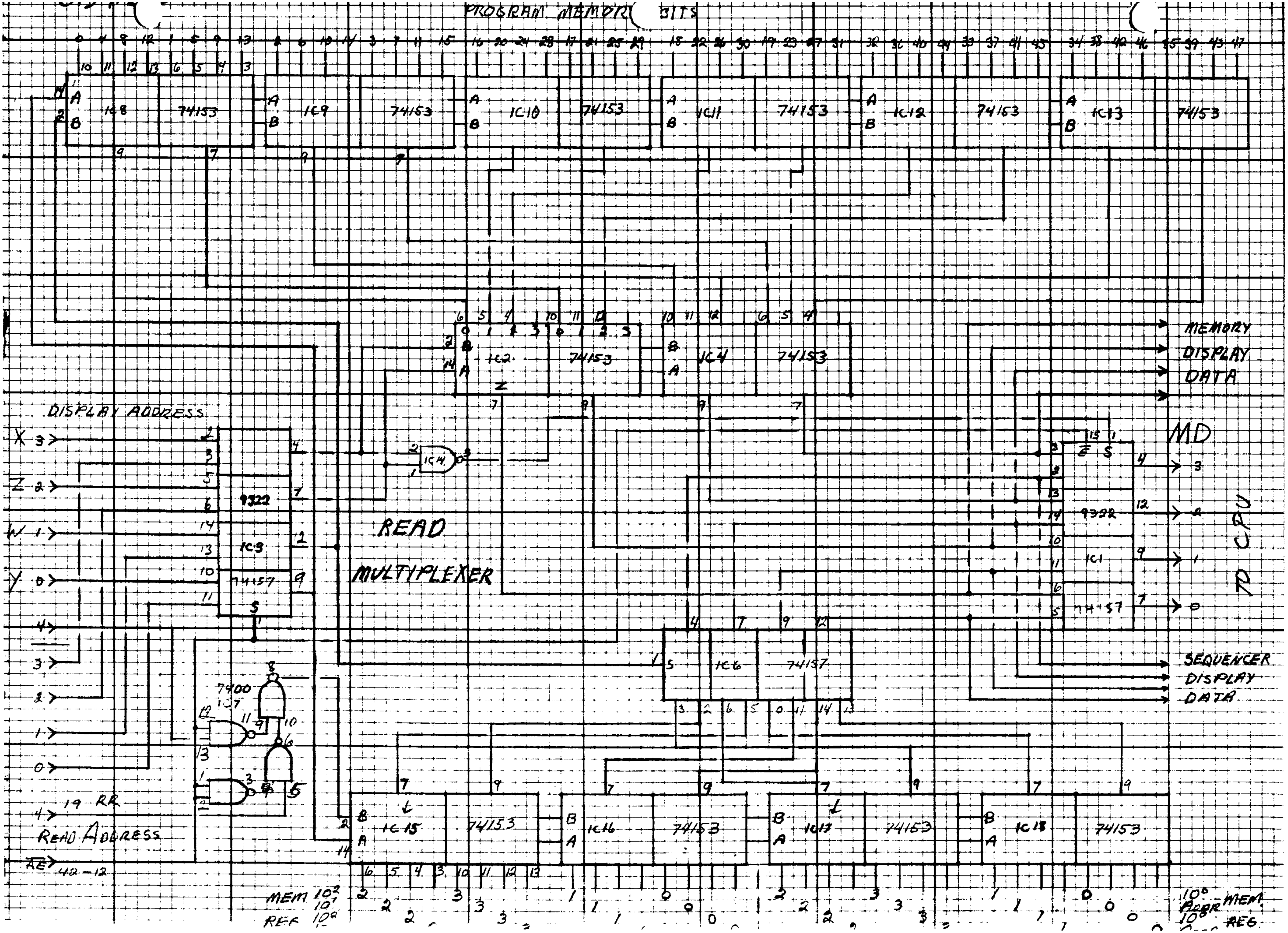
74153 / IC45

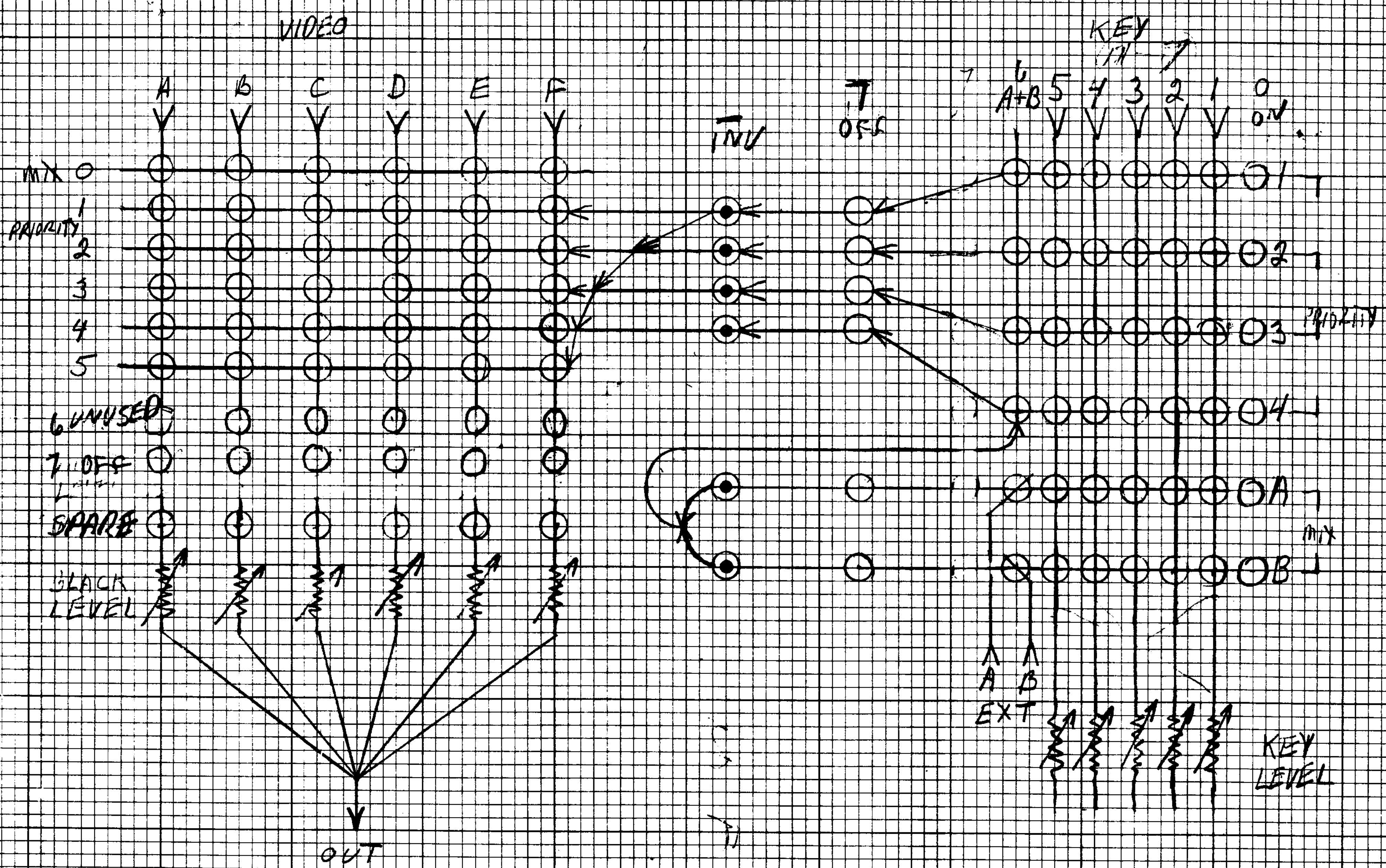
EXT	PS	A	B
0	0	H	H
0	1	EXT IN	PRESCALAR
1	0	EXT IN GATED AT FIELD RATE	EXT CLOCK
1	1		

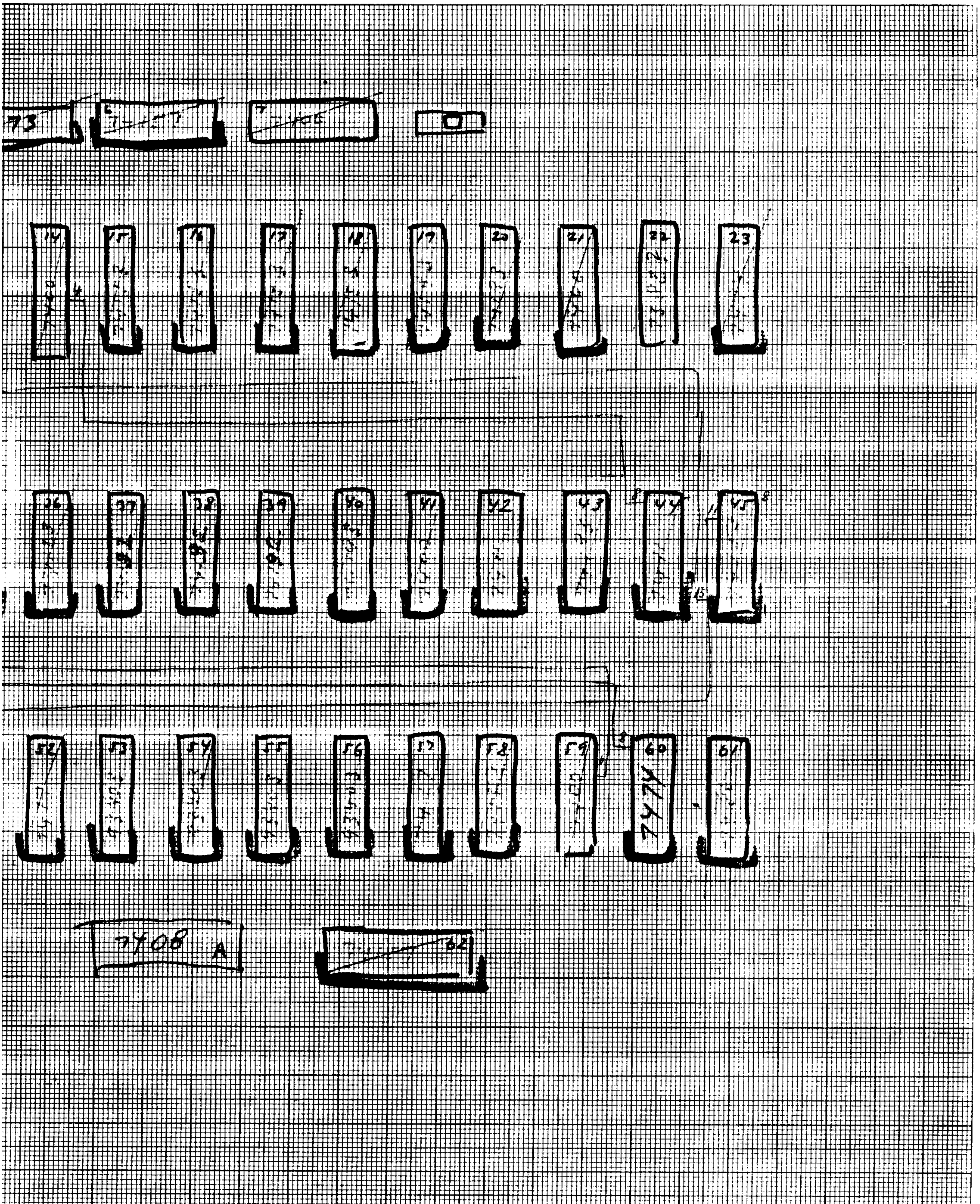
IC:	
5	60
23	61
45	
49	
50	
51	
59	

DISPLAY BOARD

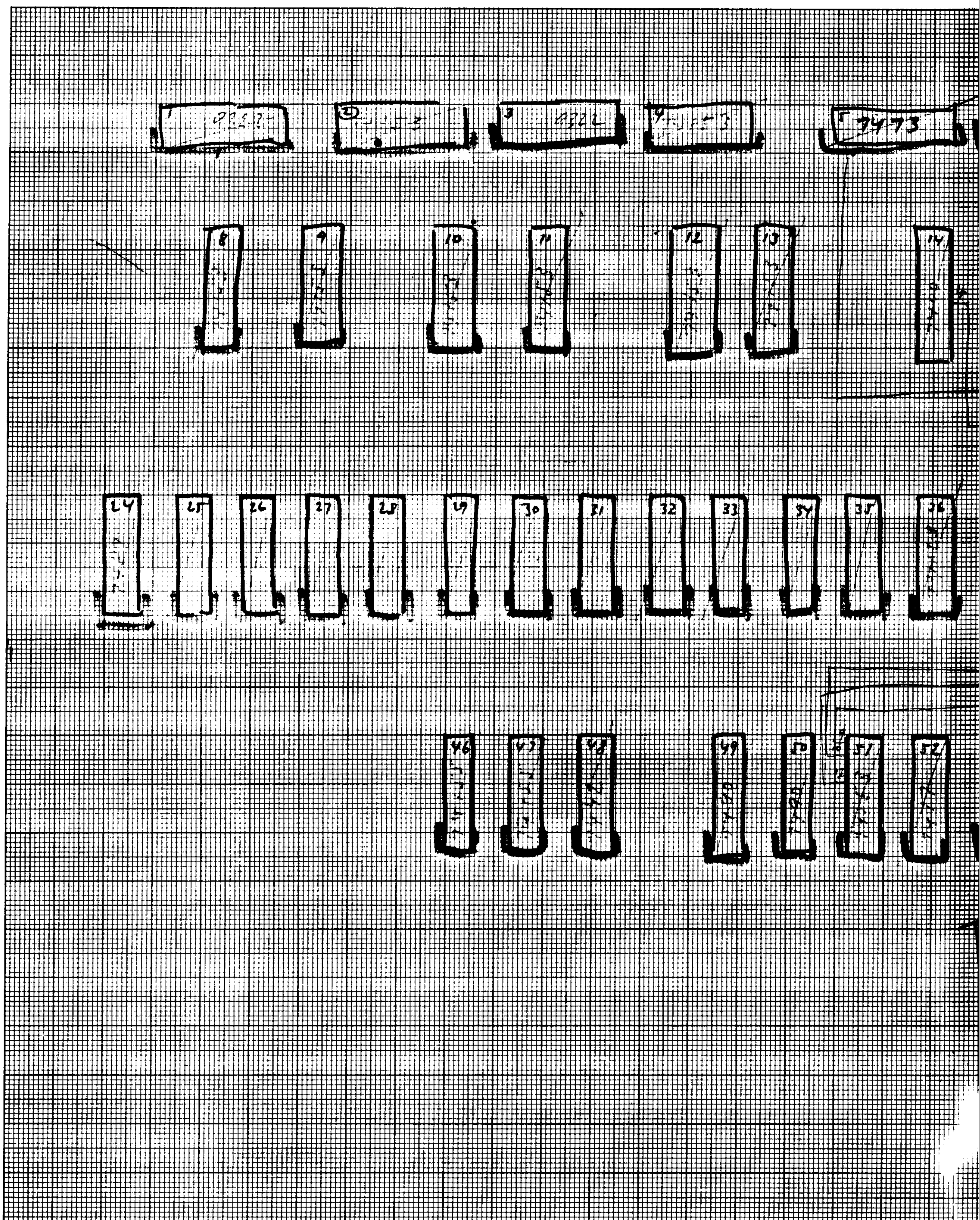


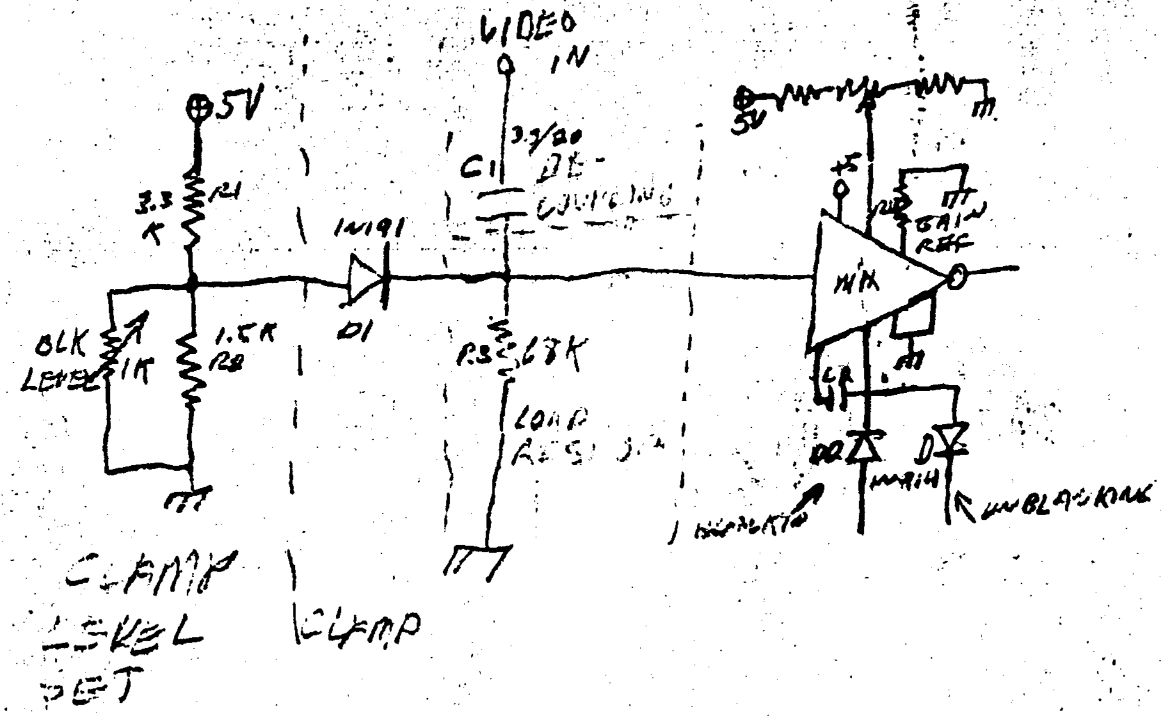

PROGRAM MEMORY BITS
IC8 74153
IC9 74153
IC10 74153
IC11 74153
IC12 74153
IC13 74153
IC2 74153
IC4 74153
DISPLAY ADDRESS
IC3 9322 74157
IC14
READ MULTIPLEXER
IC6 74157
IC1 9322 74157
MEMORY
DISPLAY
DATA
MD
TO CPU
SEQUENCER
DISPLAY
DATA
7400 IC7
READ ADDRESS
19 RR
AE 42-12
IC15 74153
IC16 74153
IC17 74153
IC18 74153
MEM REF
MEM ADDR REG.


VIDEO
A
B
C
D
E
F
MIX 0
PRIORITY 1
2
3
4
5
6 UNUSED
7 OFF
SPARE
BLACK LEVEL
OUT
INV
OFF
KEY
A+B
5
4
3
2
1
0
ON
PRIORITY
MIX
A
B
EXT
KEY LEVEL



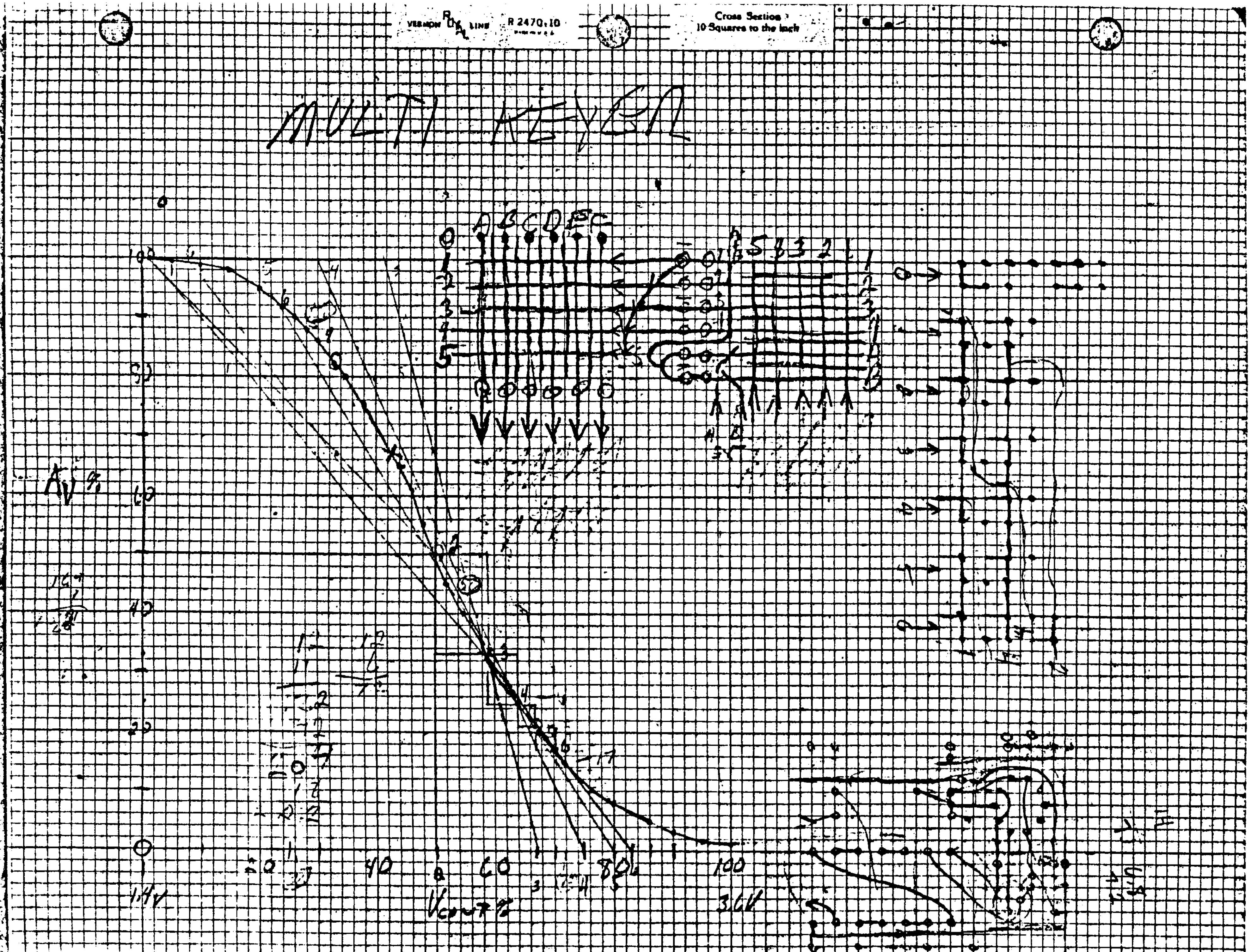
73
14
15
16
17
18
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59
60
61
7474
7408 A
62


1
2
3
4
5 7473
8
9
10
11
12
13
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52

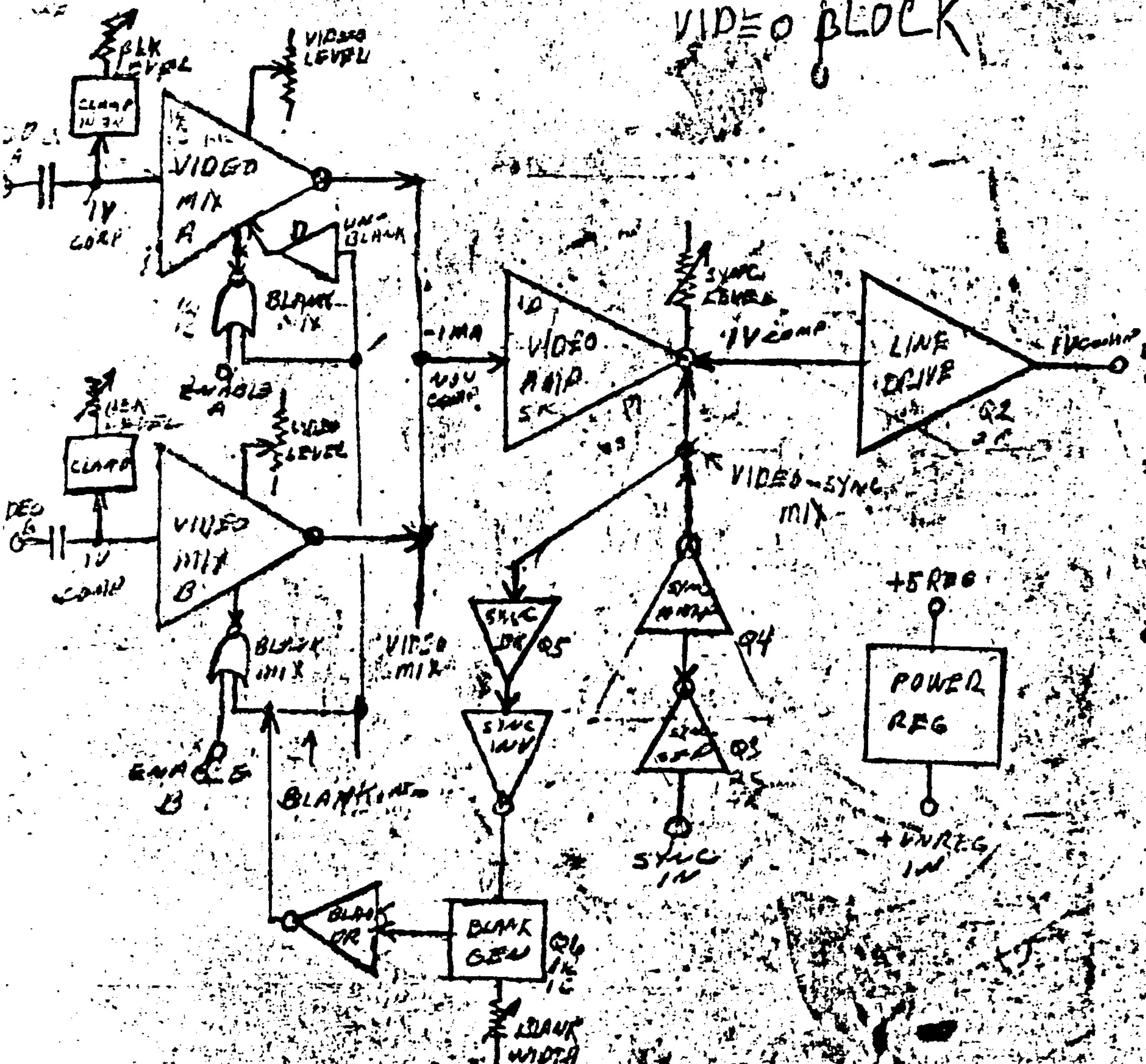


VIDEO BLOCK

MULTIKEYER


VERNON R LINE R 2470:10
Cross Section 10 Squares to the Inch
MULTI KEYED
Av %
Vcont %
1.4V
3.6V

COMPLETE VIDEO BLOCK

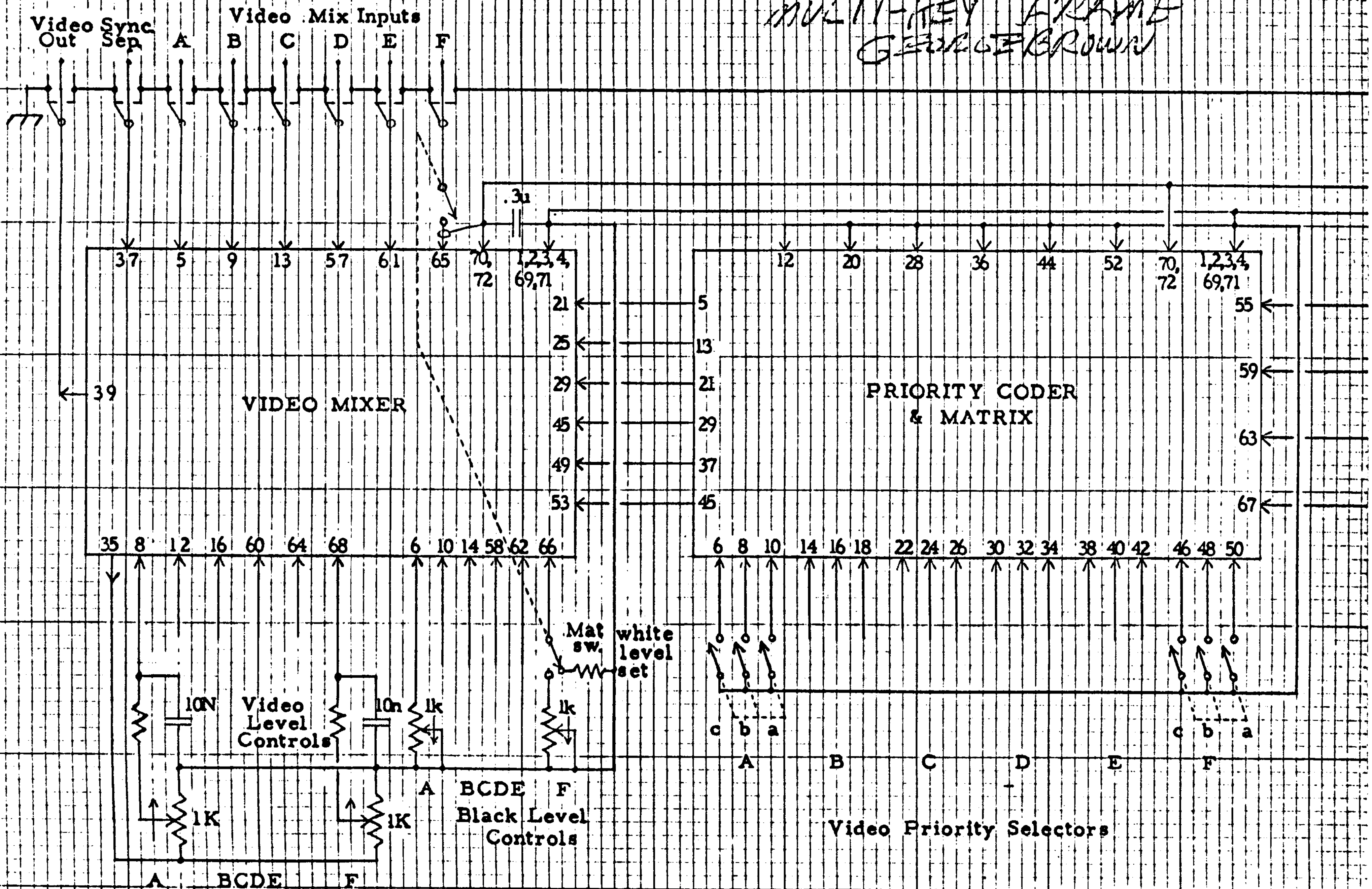


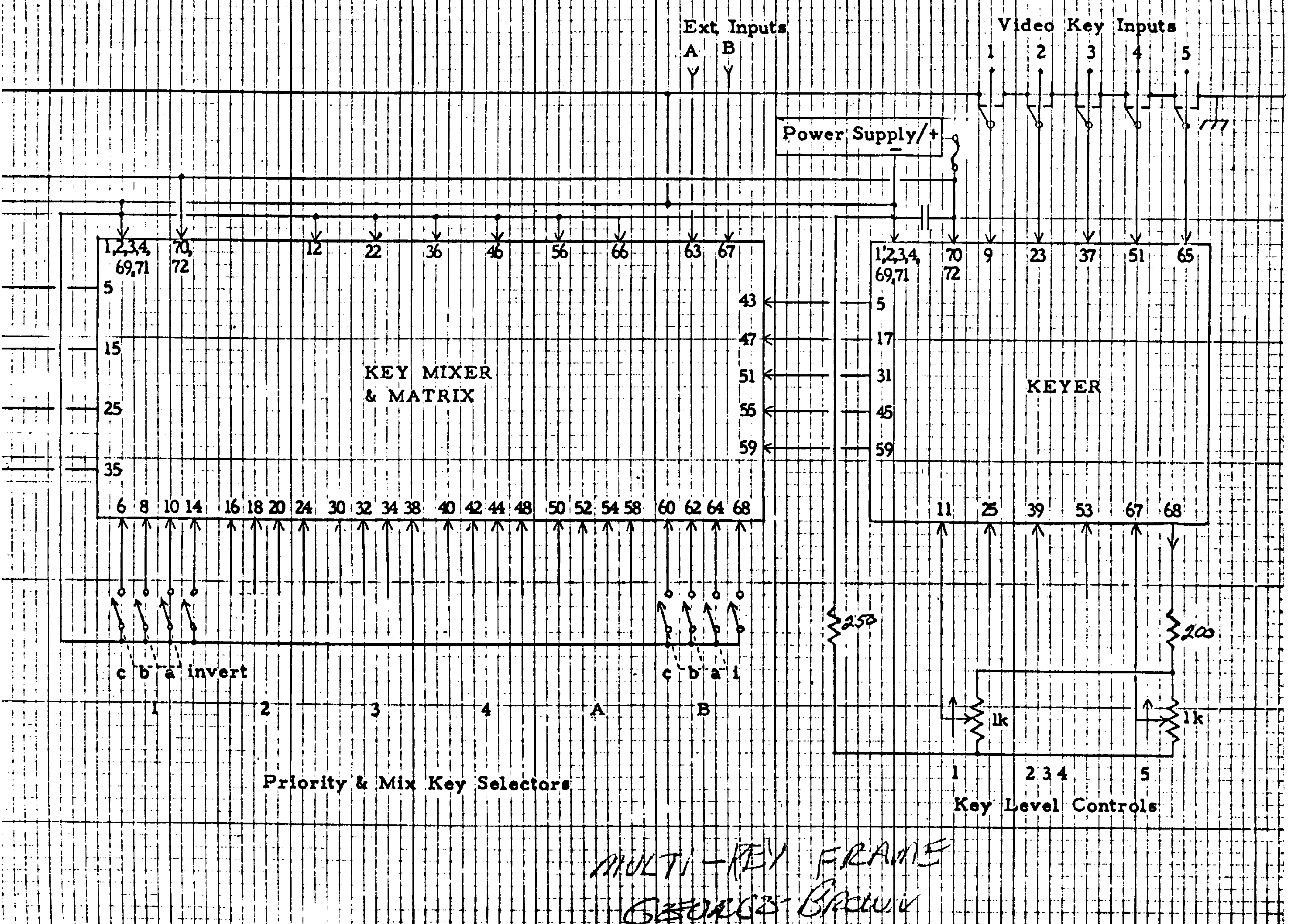
CLAMP
SYNC STRIP
VIDEO LEVEL CONTROL
SWITCH CONTROL
VIDEO MIX
LINE DRIVE
SYNC ADDITION
BACKPORCH BLANKING
BLANKING IN A
SYNC SEP

MULTI-KEYER-MIXER

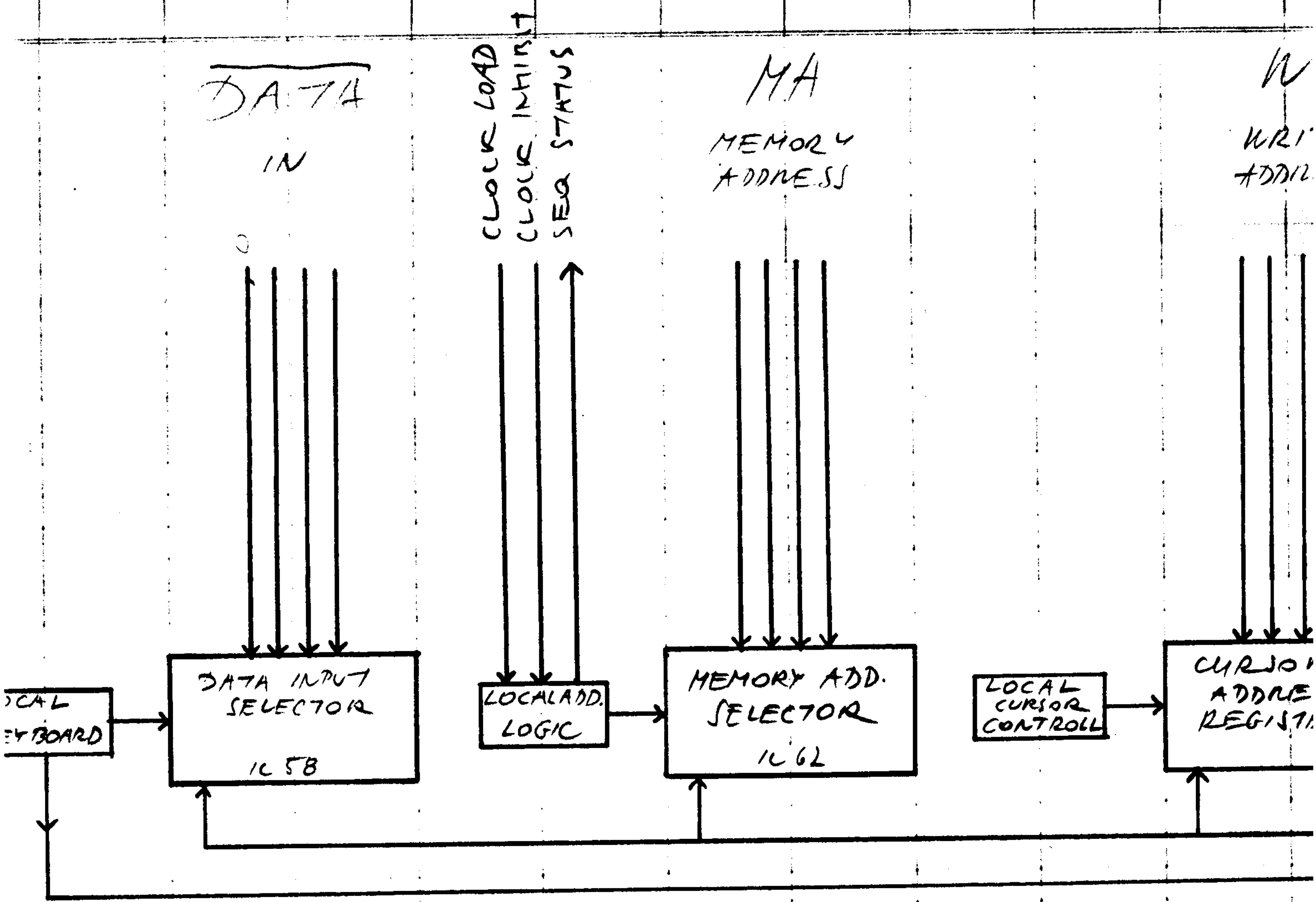
George Brown

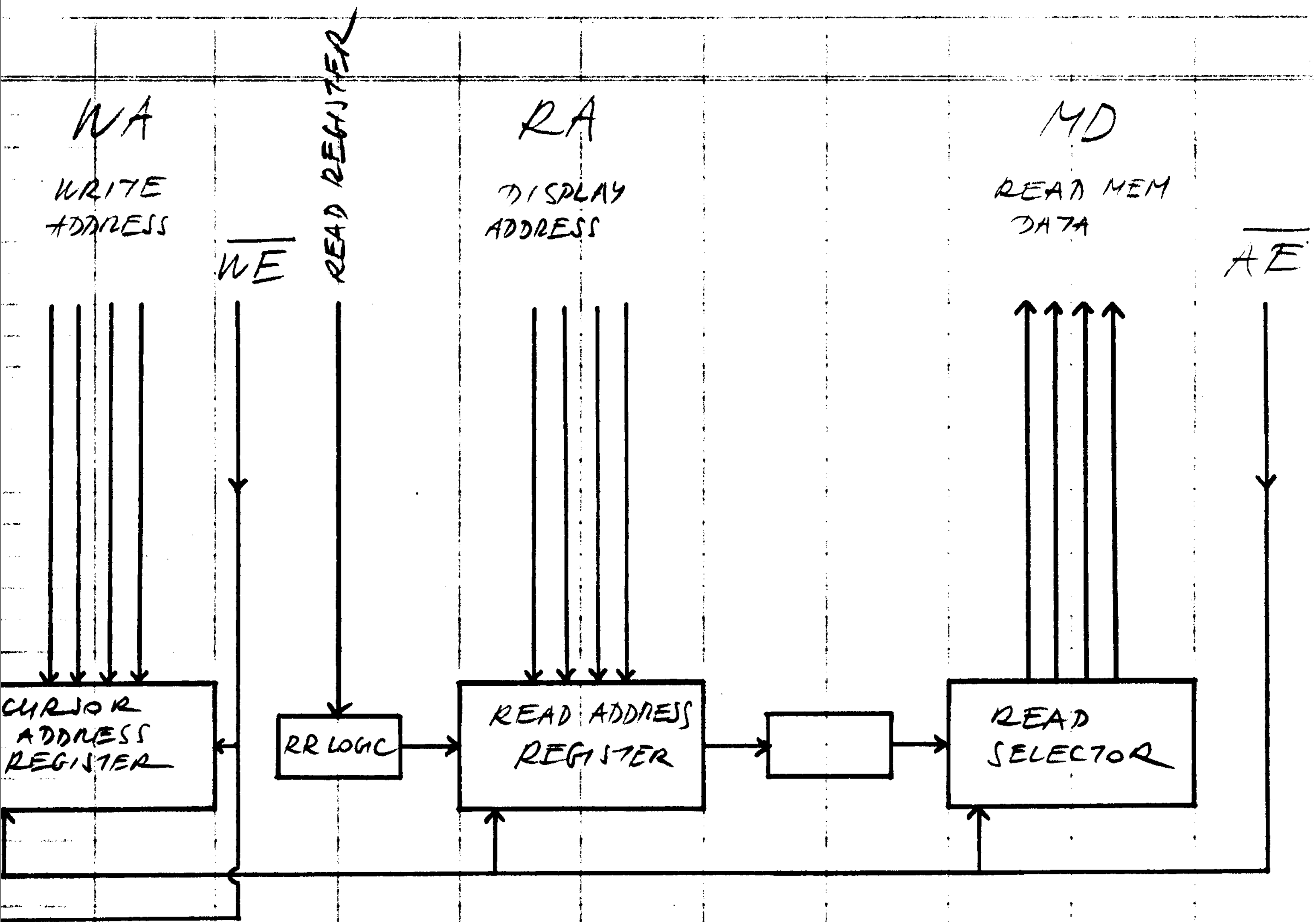
MULTI-KEY FRAME
GEORGE BROWN



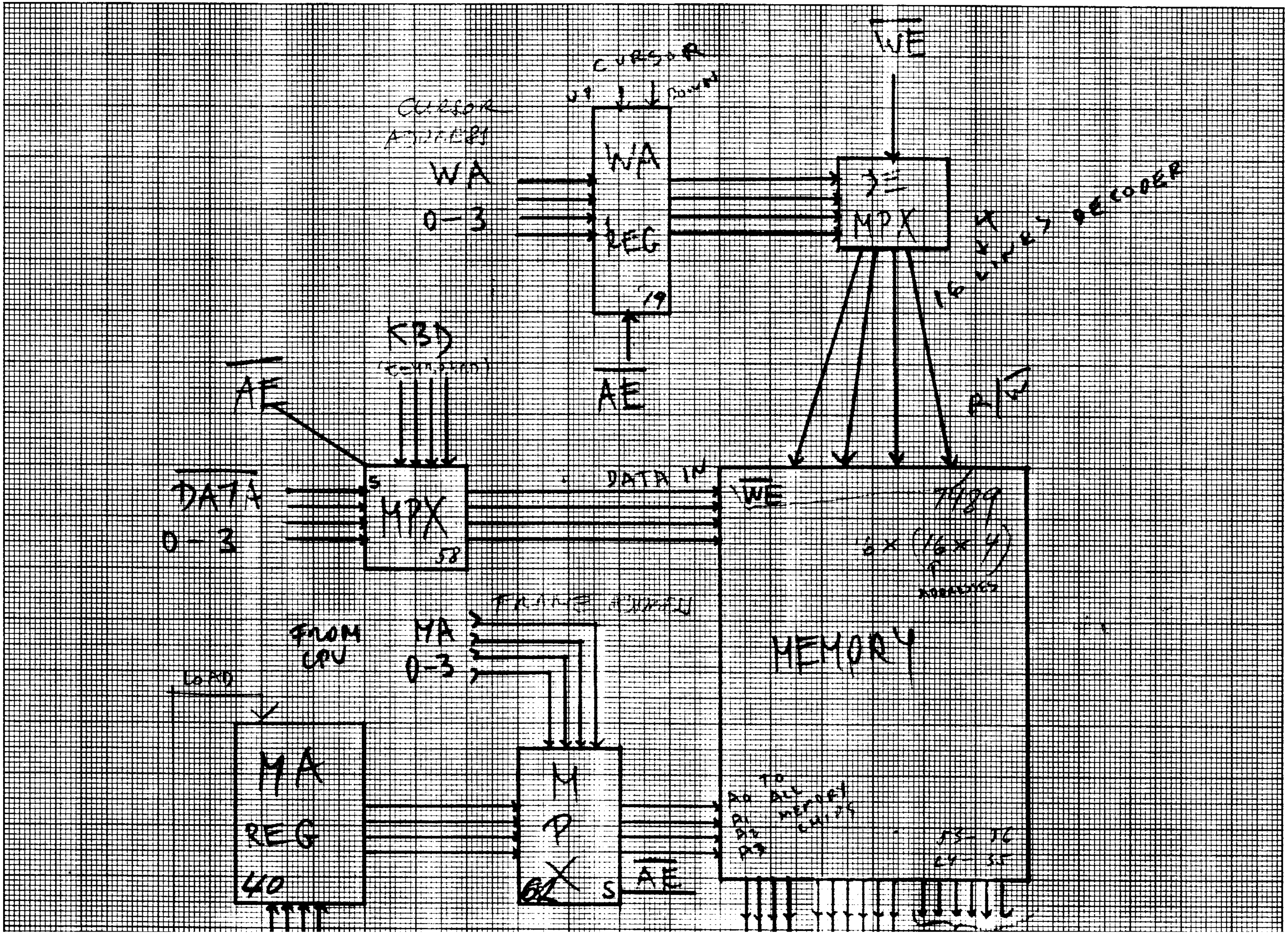


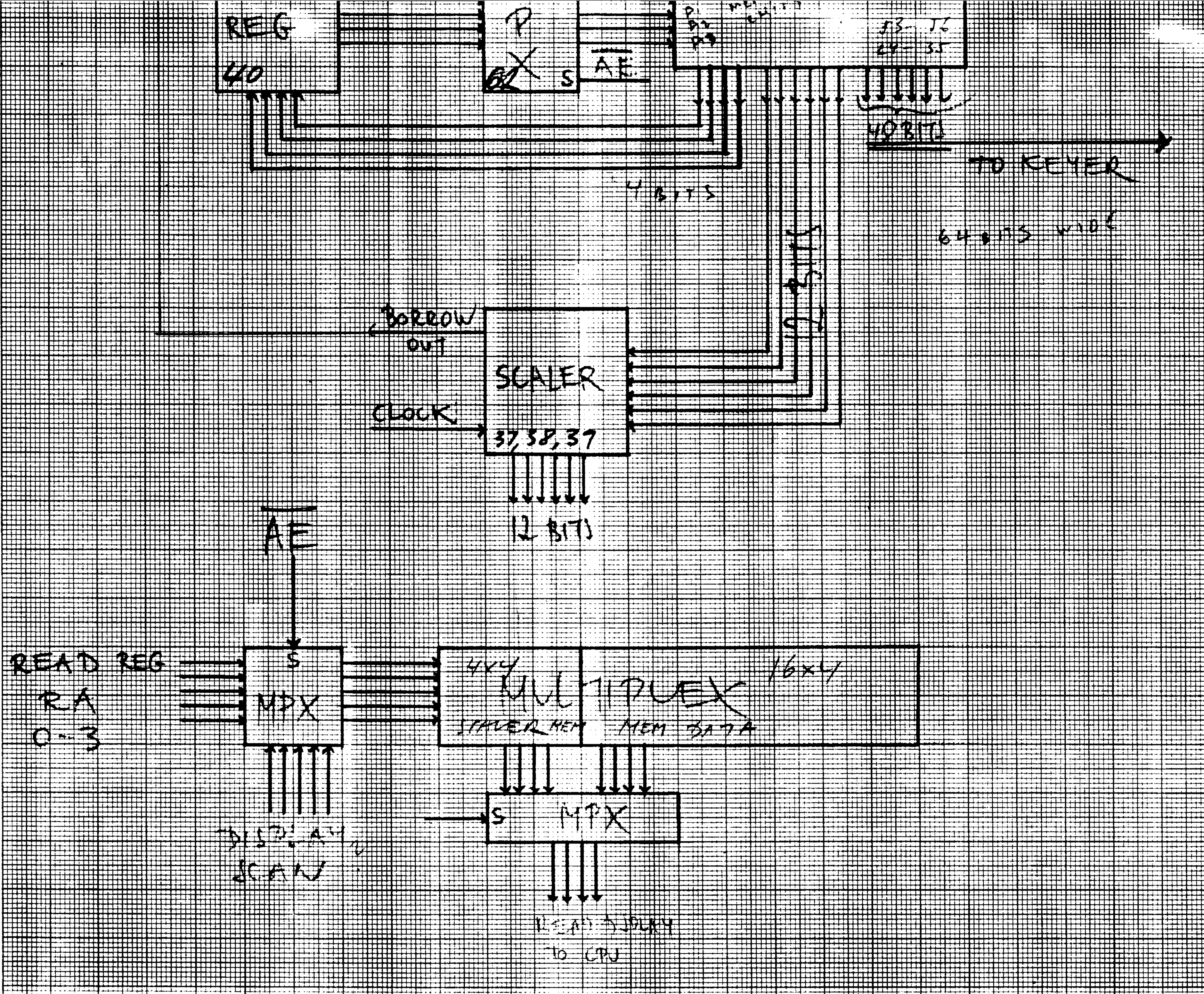
Ext Inputs
A B
Video Key Inputs
1 2 3 4 5
Power Supply/+
KEY MIXER
& MATRIX
1,2,3,4, 69,71
70, 72
12 22 36 46 56 66 63 67
5 15 25 35
43 47 51 55 59
6 8 10 14 16 18 20 24 30 32 34 38 40 42 44 48 50 52 54 58 60 62 64 68
KEYER
1,2,3,4, 69,71
70 72
9 23 37 51 65
5 17 31 45 59
11 25 39 53 67 68
250
200
1k
1k
c b a invert
c b a i
1 2 3 4 A B
Priority & Mix Key Selectors
1 2 3 4 5
Key Level Controls
MULTI-KEY FRAME
GEORGE BROWN


DATA
IN
CLOCK LOAD
CLOCK INHIBIT
SEQ STATUS
MA
MEMORY
ADDRESS
DATA INPUT
SELECTOR
IC 58
LOCAL ADD.
LOGIC
MEMORY ADD.
SELECTOR
IC 62
LOCAL
CURSOR
CONTROLL

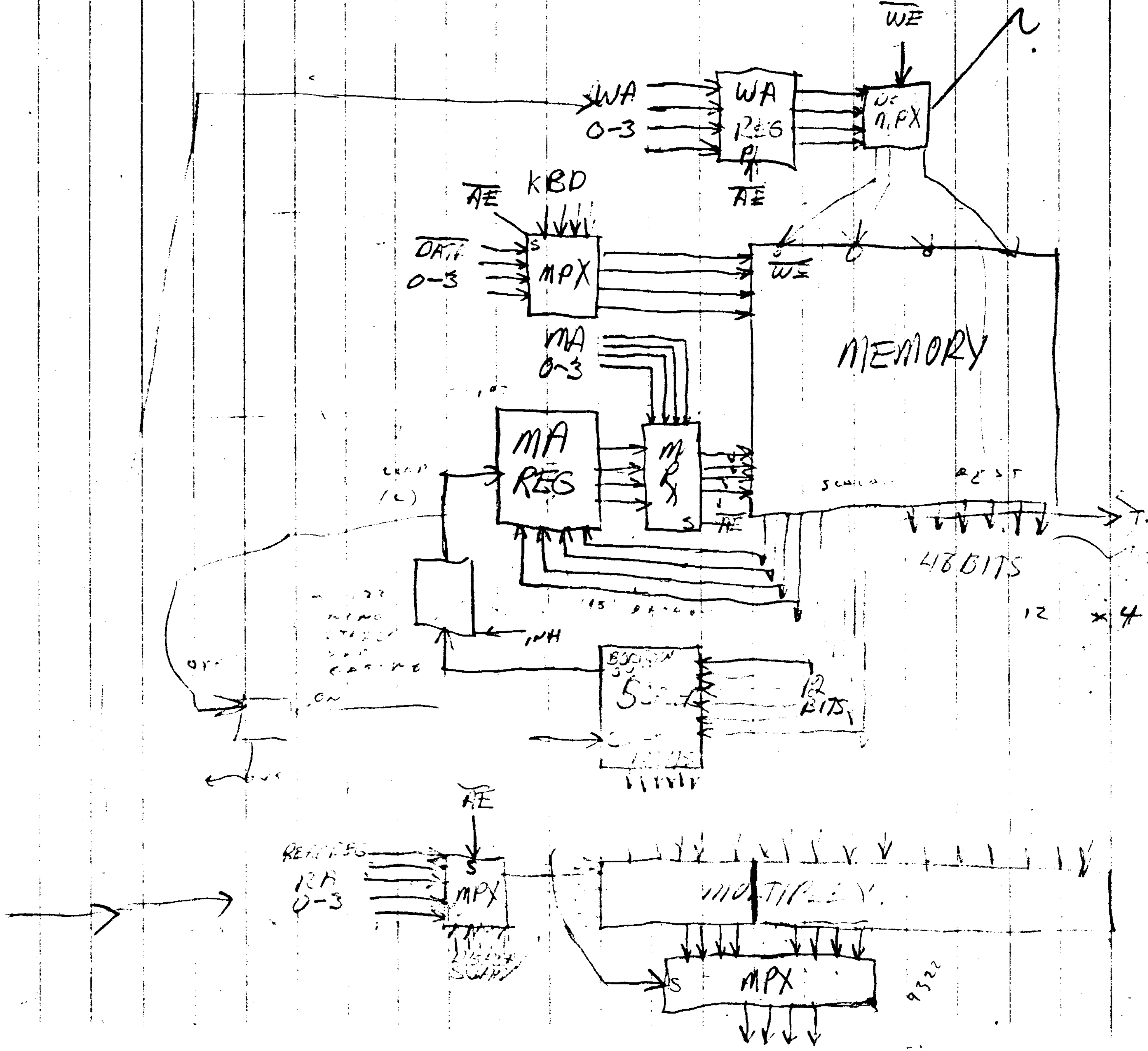

WA
WRITE ADDRESS
WE
READ REGISTER
RA
DISPLAY ADDRESS
MD
READ MEM DATA
AE
CURSOR ADDRESS REGISTER
RR LOGIC
READ ADDRESS REGISTER
READ SELECTOR

No. 675
10 X 10 TO THE CENTIMETER
MADE IN U. S. A.



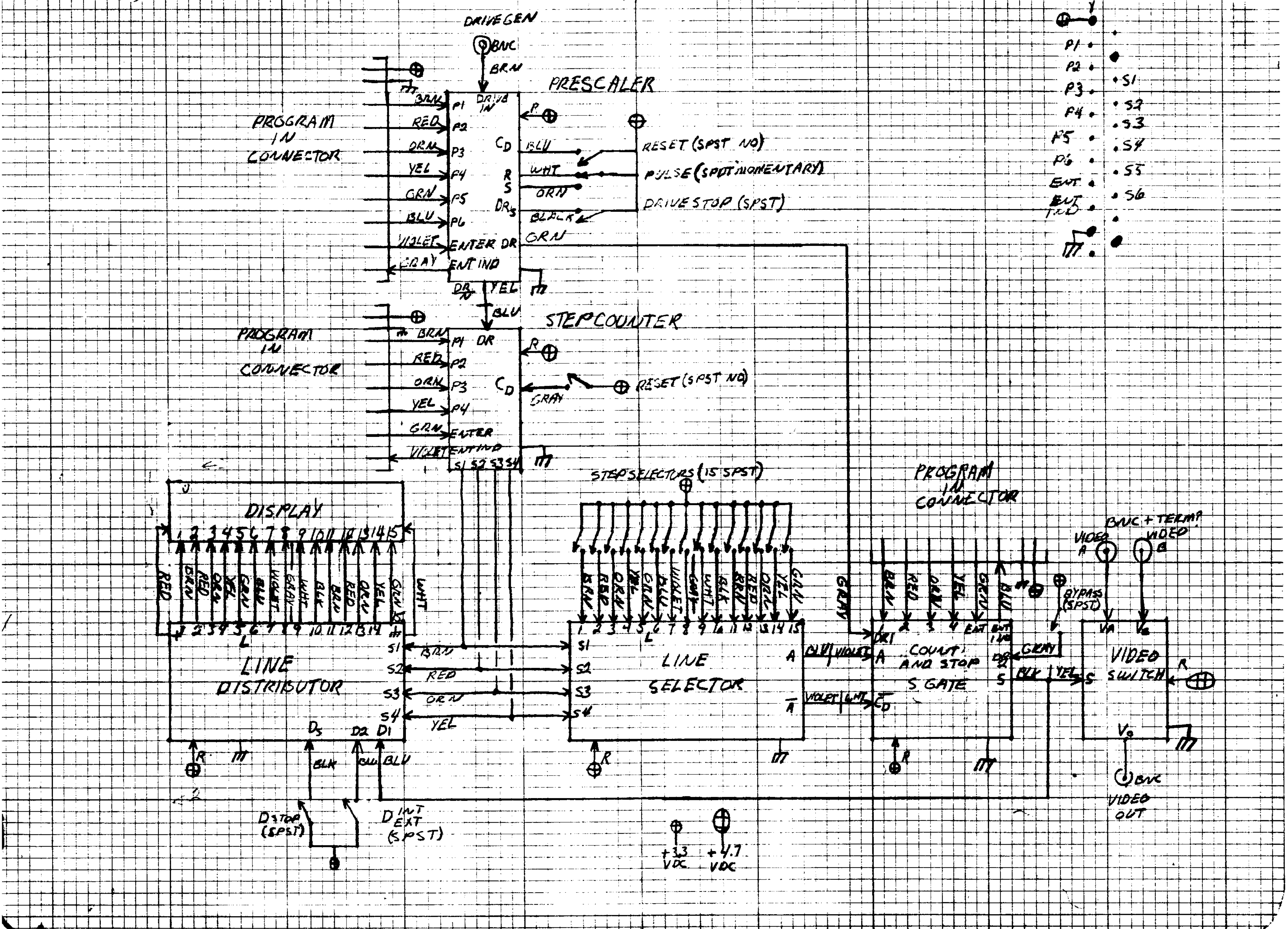

REG
40
P
S
$\overline{AE}$
4 BITS
40 BITS
TO KEYER
64 BITS WIDE
BORROW OUT
SCALER
CLOCK
37,38,39
12 BITS
$\overline{AE}$
S
MPX
READ REG
RA
0-3
DISPLAY
SCAN
4x4
MULTIPLEX
16x4
SCALER MEM
MEM DATA
S
MPX
READ DISPLAY
TO CPU

S31700


WE
WA 0-3
WA REG
AE
KBD
DATA 0-3
MPX
MEMORY
MA 0-3
MA REG
48 BITS
12
×4
INH
12 BITS
RR 0-3
MPX
MULTIPLEX
MPX
9322

GEORGE BROWN:

VIDEO SEQUENCER


DRIVE GEN
BNC
PRESCALER
PROGRAM IN CONNECTOR
RESET (SPST NO)
PULSE (SPDT MOMENTARY)
DRIVE STOP (SPST)
STEP COUNTER
PROGRAM IN CONNECTOR
RESET (SPST NO)
DISPLAY
STEP SELECTORS (15 SPST)
PROGRAM IN CONNECTOR
BNC + TERM?
VIDEO A
VIDEO B
BYPASS (SPST)
LINE DISTRIBUTOR
LINE SELECTOR
COUNT AND STOP S GATE
VIDEO SWITCH
D STOP (SPST)
D INT EXT (SPST)
+3.3 VDC
+4.7 VDC
VIDEO OUT
BNC

PRE SCALER CONTROLS

DRIVE STOP — STOPS EXT DRIVE INPUT)

PULSE — MANUALY PULSES PRESCALER ALSO MOMENTARY DRIVE STOP

RESET — RESETS COUNTER TO 0 ALSO PULSES OUTPUT $\frac{DR}{N}$

DOES NOT ALLOW PROGRAM ENTRY

STEP COUNTER

RESET — RESETS COUNTER TO 0 ALLOWS PROGRAM ENTRY

LINE SELECTOR

STEP SELECTOR SWITCES SELECT CHANNEL A OR B FOR EACH STEP OF SEQUENCE.

COUNT AND STOP

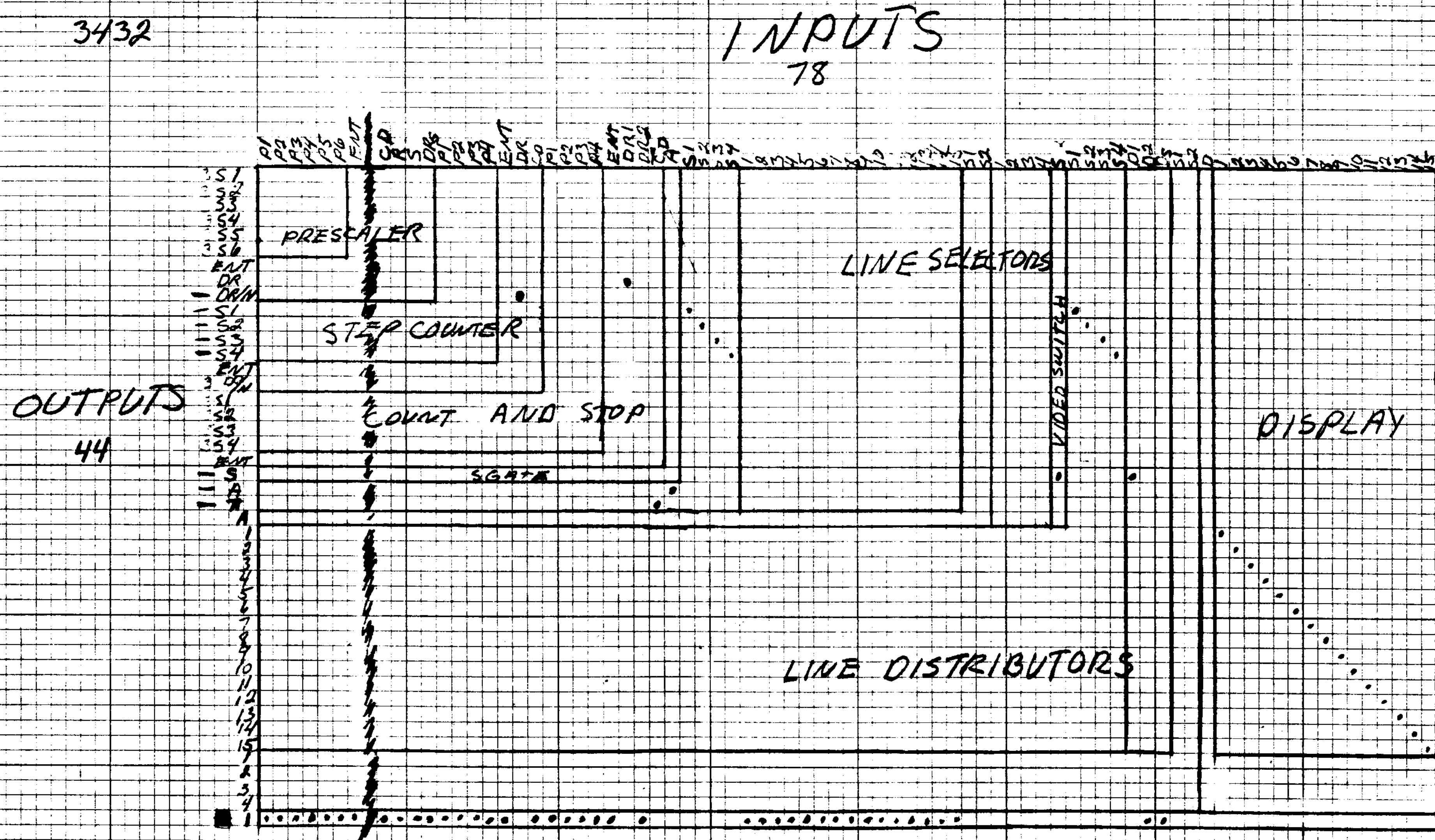
S GATE

BY.PASS · REMOVES S GATE

LINE DISTRIBUTOR

D_{EXT}^{INT} — SELECTS EXTERNAL SIGNAL OR ALL OUTPUTS 1

D_{STOP} — ALL OUTPUTS 0



3432
INPUTS
78
OUTPUTS
44
PRESCALER
STEP COUNTER
COUNT AND STOP
SGATE
LINE SELECTORS
VIDEO SWITCH
DISPLAY
LINE DISTRIBUTORS

Pin	A		B		C		D		E		F	
A	A	Q1 1	A	Q1 1	A 1 (L)	S1 1	A 1 (L)	S1 1	A	Q1 1	A 1	1
B	·	Q2	·	Q2	2	S2	2	S2	·	Q2	m	2
C	·	Q3	·	Q3	3	S3	3	S3	·	Q3	B	3
D	·	Q4	·	Q4	4	S4	4	S4	·	Q4	[illegible]	4
E	·	Q5	·	·	5	(S1)	5	(S1)	·	·	·	5
F	·	Q6	·	·	6	(S2)	6	(S3)	·	·	·	6
H	·	DRIVE IN	·	DR [illegible]	7	D1	7	·	·	DR1	·	7
J	·	·	·	·	8	D2	8	·	·	DR2	·	8
K	·	DR5	·	·	9	D3	9	·	·	·	·	9
L	·	CD	·	CD	10	·	10	·	·	$\overline{CD}$	·	10
M	·	R	·	·	11	(D)	11	·	·	·	·	11
N	·	S	·	·	12	·	12	·	·	R	·	12
P	·	DR	·	·	13	·	13	R	·	S	·	13
R	·	DR/W	·	DR/W	14	·	14	A	·	DRW	·	14
S	·	ENT IND	·	ENT IND	15	·	15	(A)	·	ENT IND	·	15
T	·	ENT	·	ENT	(1)	·	(1)	·	·	ENT	·	16
U	·	P6	·	·	(2)	·	(2)	·	·	·	OUT	17
V	·	P5	·	·	([illegible])	·	([illegible])	·	·	·	[illegible]	18
W	·	P4	·	P4	([illegible])	·	([illegible])	·	·	P4	·	19
X	+32	P3	+32	P3	+32	·	+32	·	+32	P3	S	20
Y	[illegible]	P2	[illegible]	P2	[illegible]	·	[illegible]	·	[illegible]	P2	[illegible]	21
Z	Z [illegible]	P1 22	Z [illegible]	P1 22	Z [illegible]	22	Z [illegible]	22	Z [illegible]	P1 22	+4.7 22	22

A B C D E F

STEP COUNT

GEORGE BROWN SEQUENCER !

- OPERATIONS.

PROGRAMMER MODULE "L"

FUNCTION SELECTOR (3-POSITIONS)

POS 1 :

SEQUENCE SPEED
SELECTED NUMBER ~~AS~~ DETERMES
POINT BY POINT SCAN TIME (1 TO 32 FIE

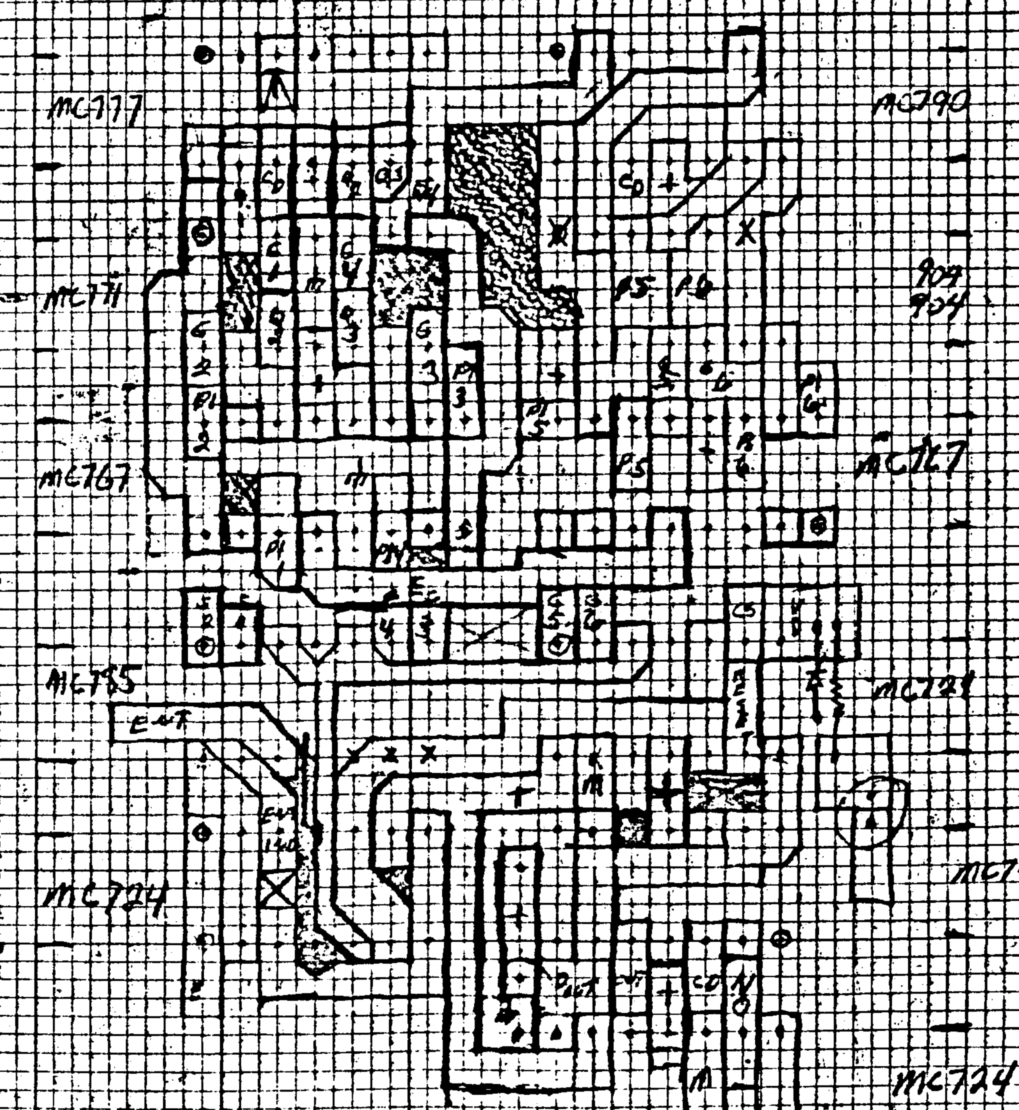
POS 2 SEQUENCE LENGTHT
16 – (0 to 15 POINTS)

POS 3 FIELF GROUP WINDOW
INSERTS AT THE POINT LOCATION
(SWITCH) SELECTED AMOUT OF FRAMES
(LIGHT DISPLAY WITH SWITCH DOWN
INDICATES SWITCH OF STATE THE LENGH
OF THE WINDOW. SWITCH UP
SHOWES THE WHOLE SCAN

STEP COUNT MODULE:

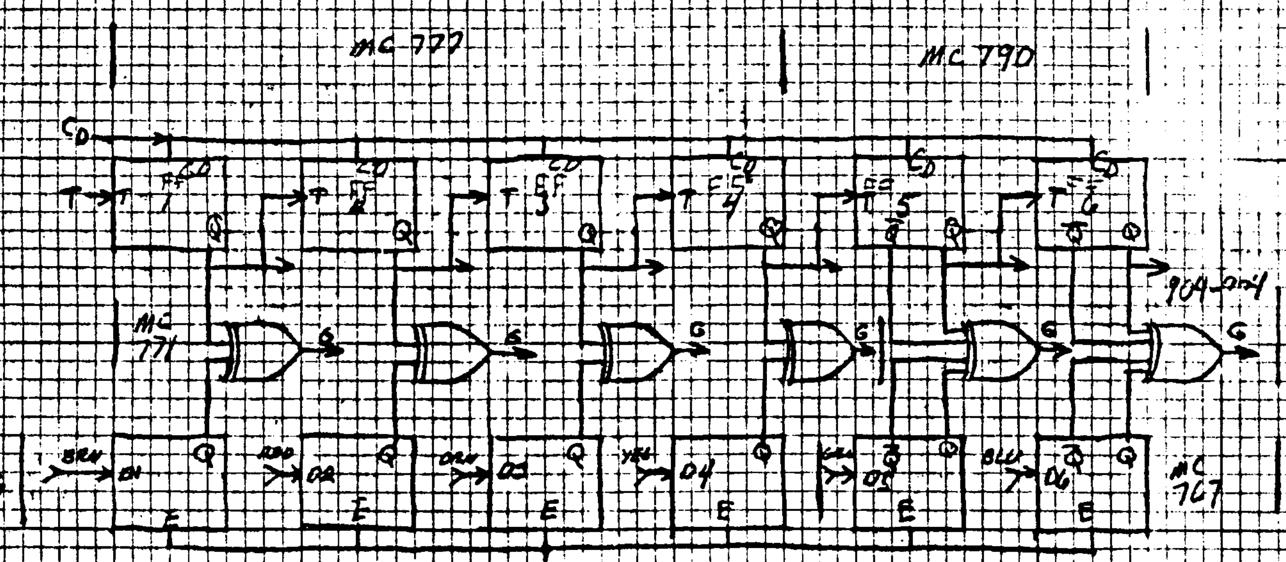
SWITCH UP IS NORMAL
SWITCH DOWN ACTIVATE THE BUTTON
TO SCAN THE SEQ ONES AND ZERO IT
AGAIN. DEPRESSED BUTTON ACTS AS SWITCH
UP

PROGRAMMABLE
ϕ-43 SCALER

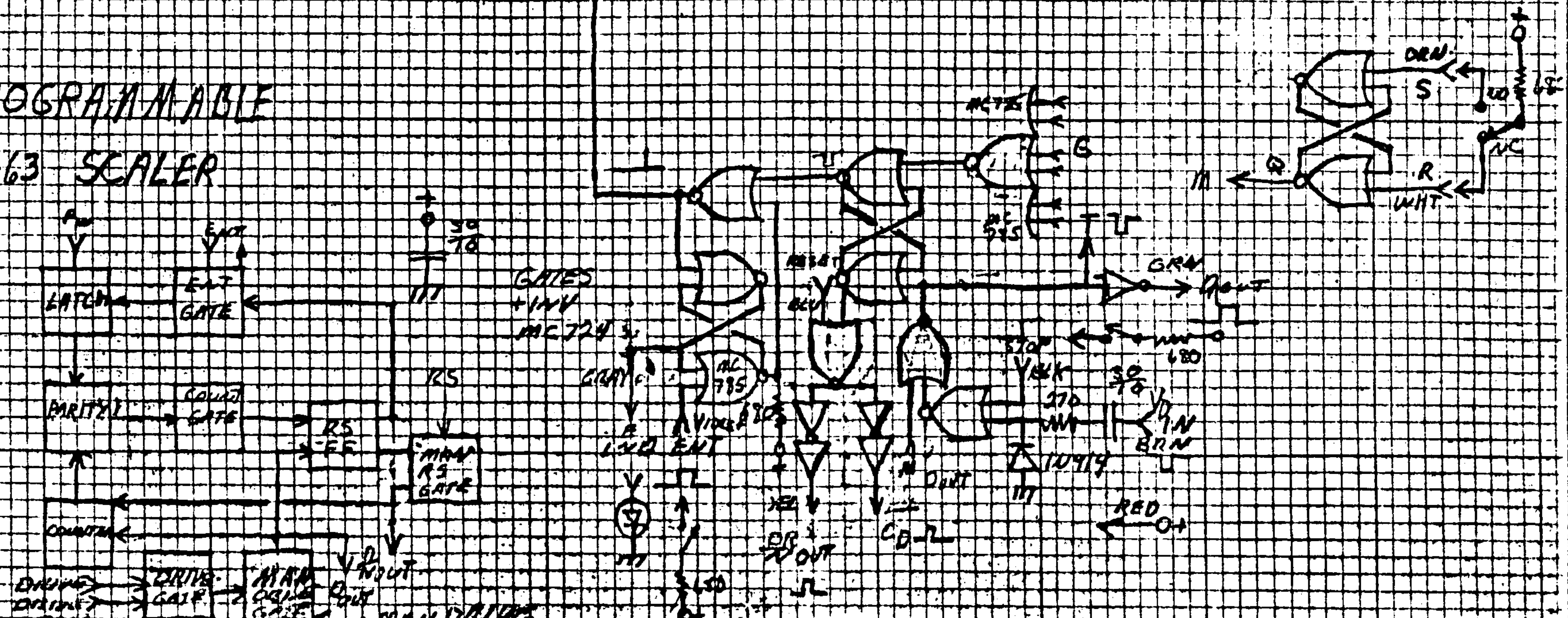


A-B SEQUENCER

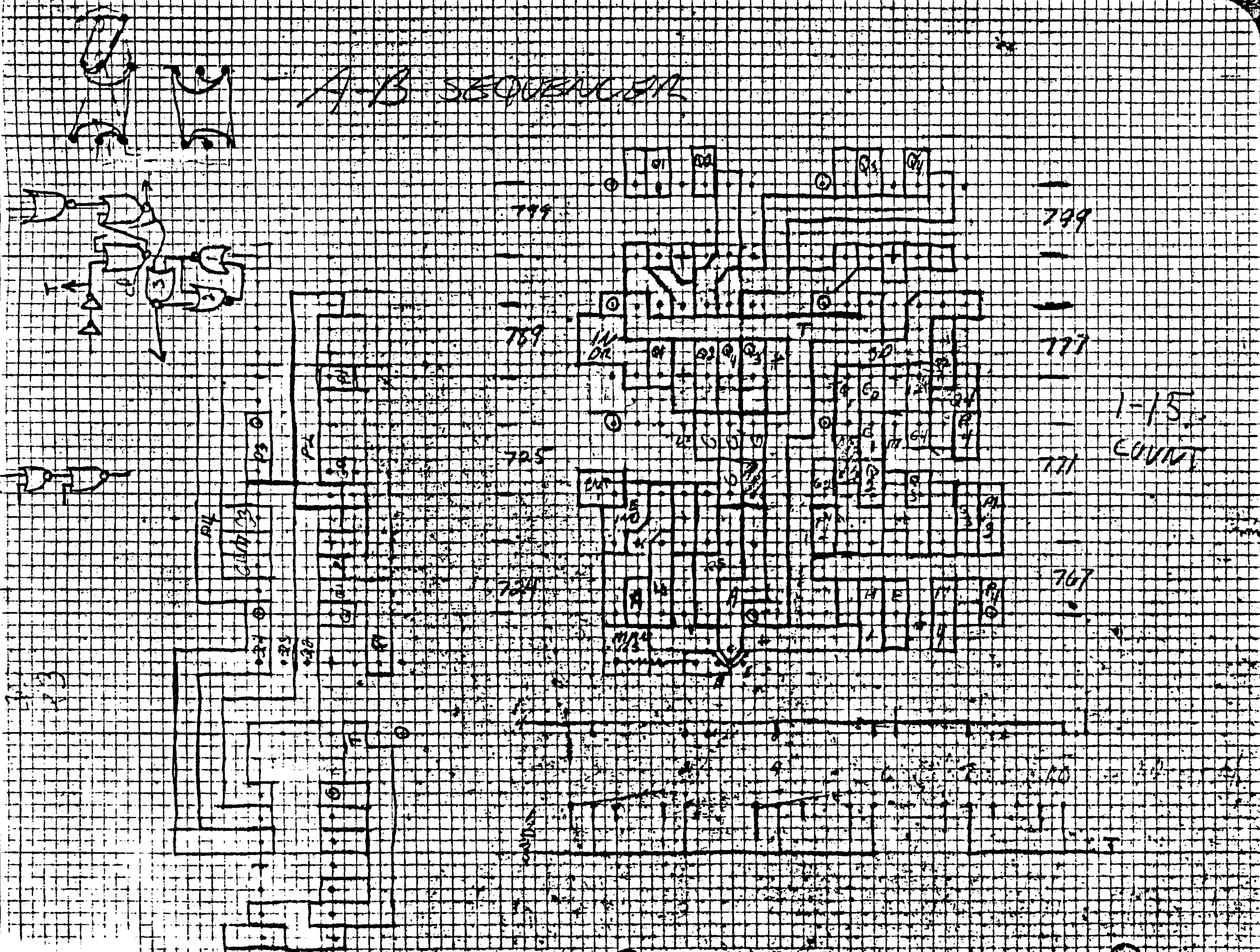
A-B SEQUENCER

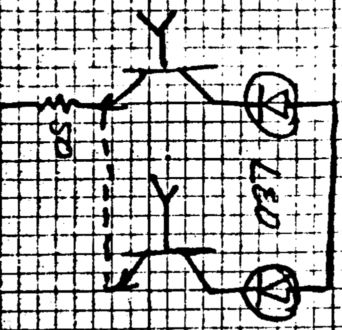


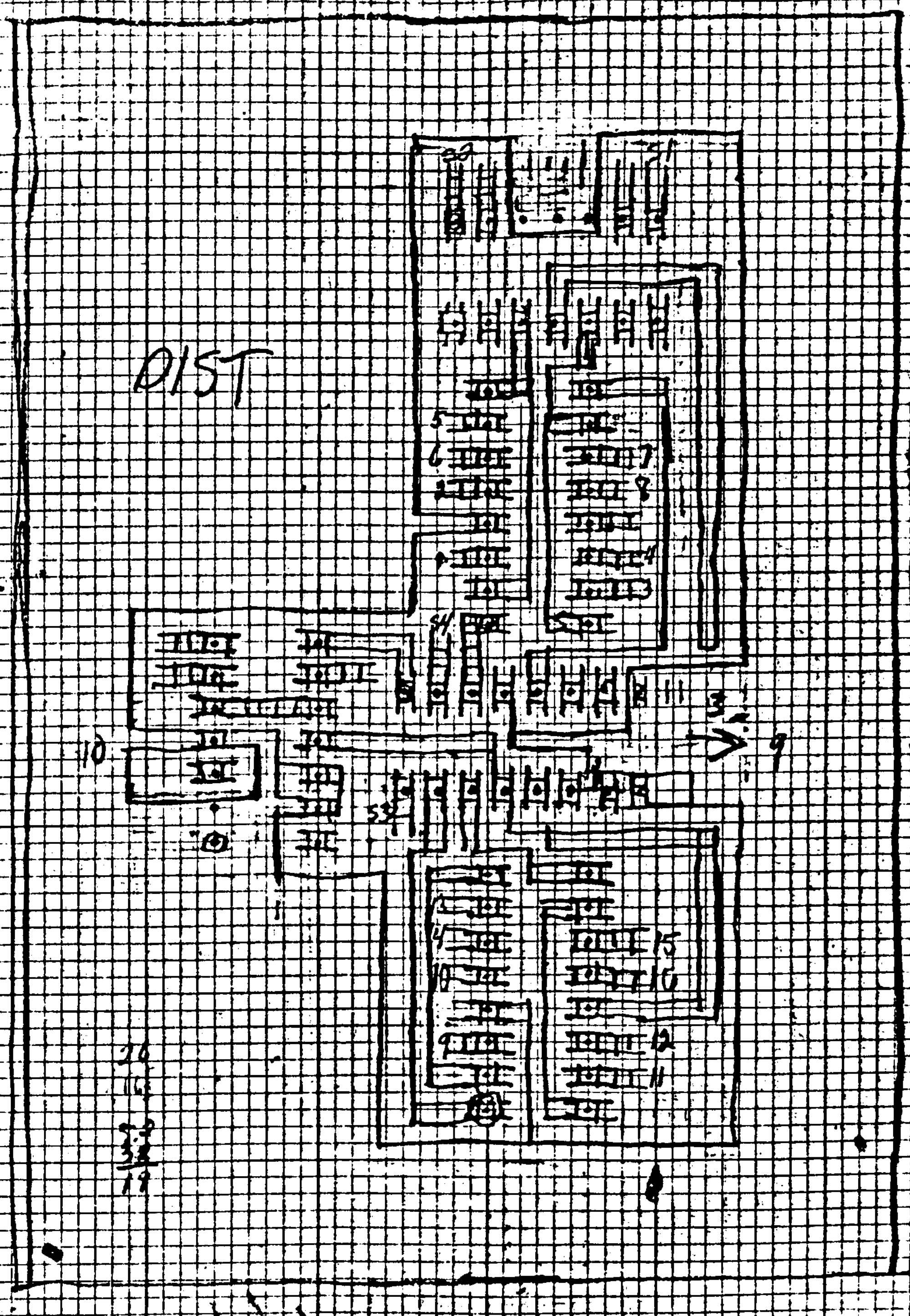
PROGRAMMABLE 1-63 SCALER



A-B SEQUENCER







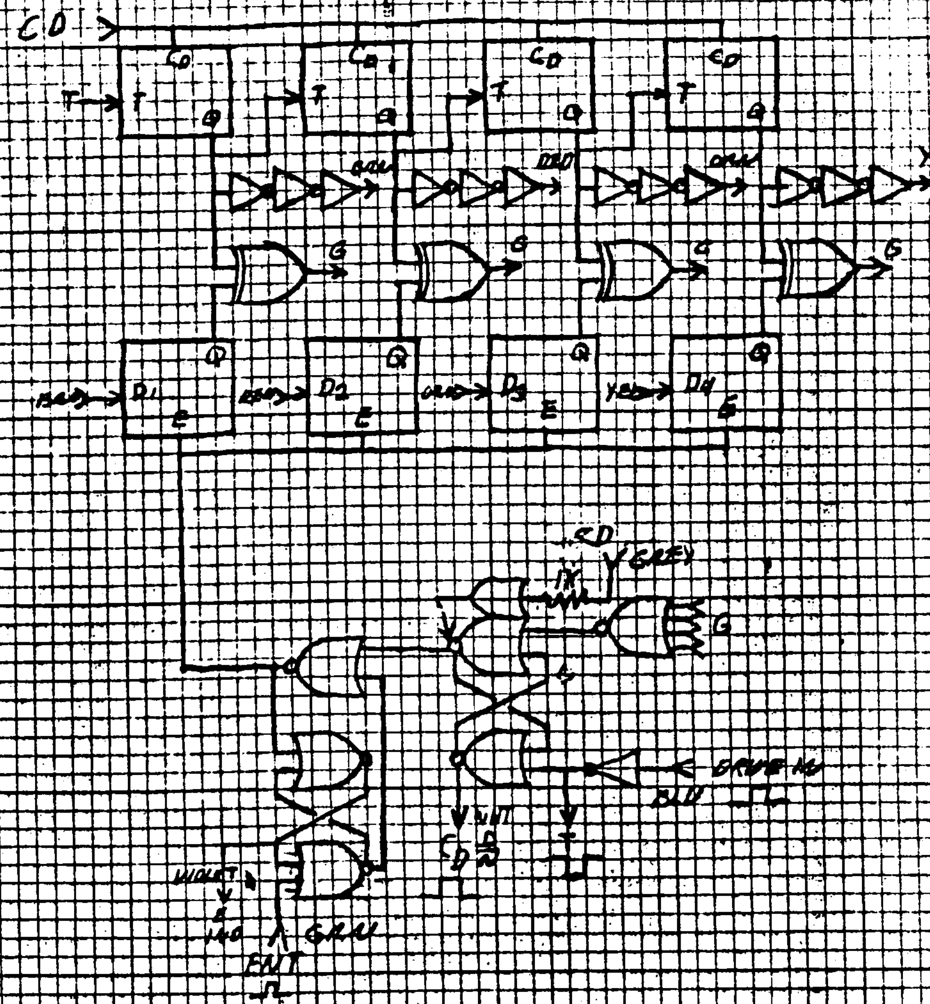
A-B SEQUENCER

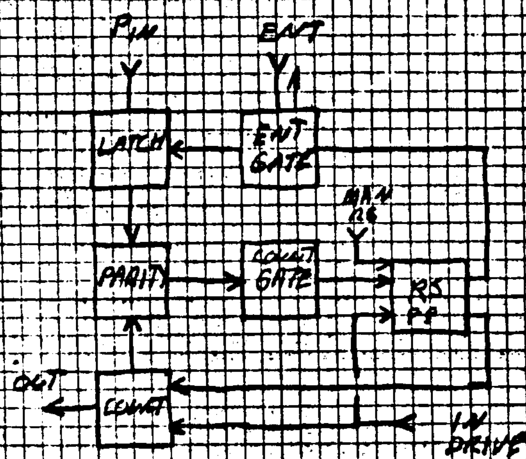
Cross Section
10 Squares to the inch
R 2470-10

A-B SEQUENCER

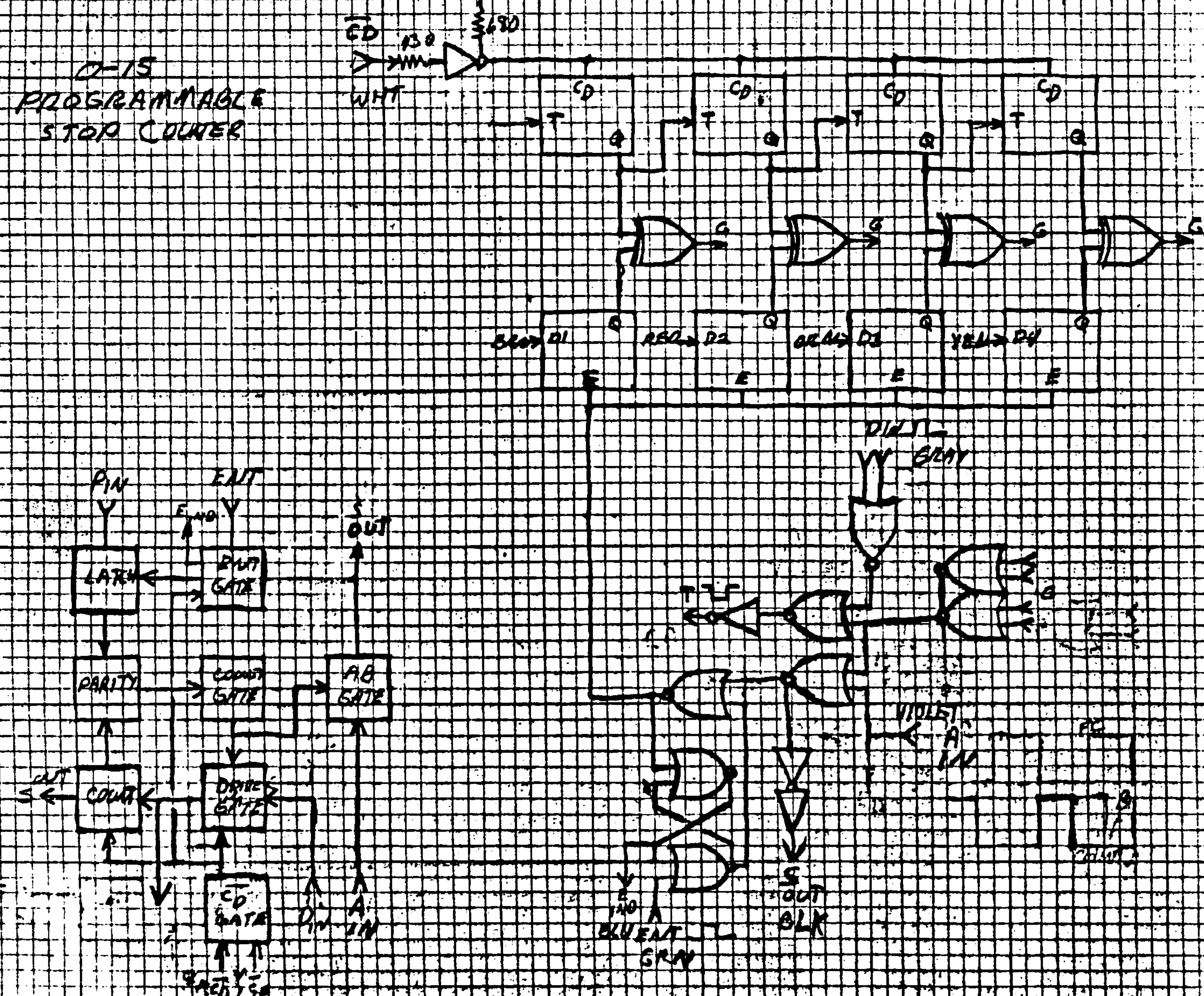


PROGRAMMABLE
1-15 COUNTER



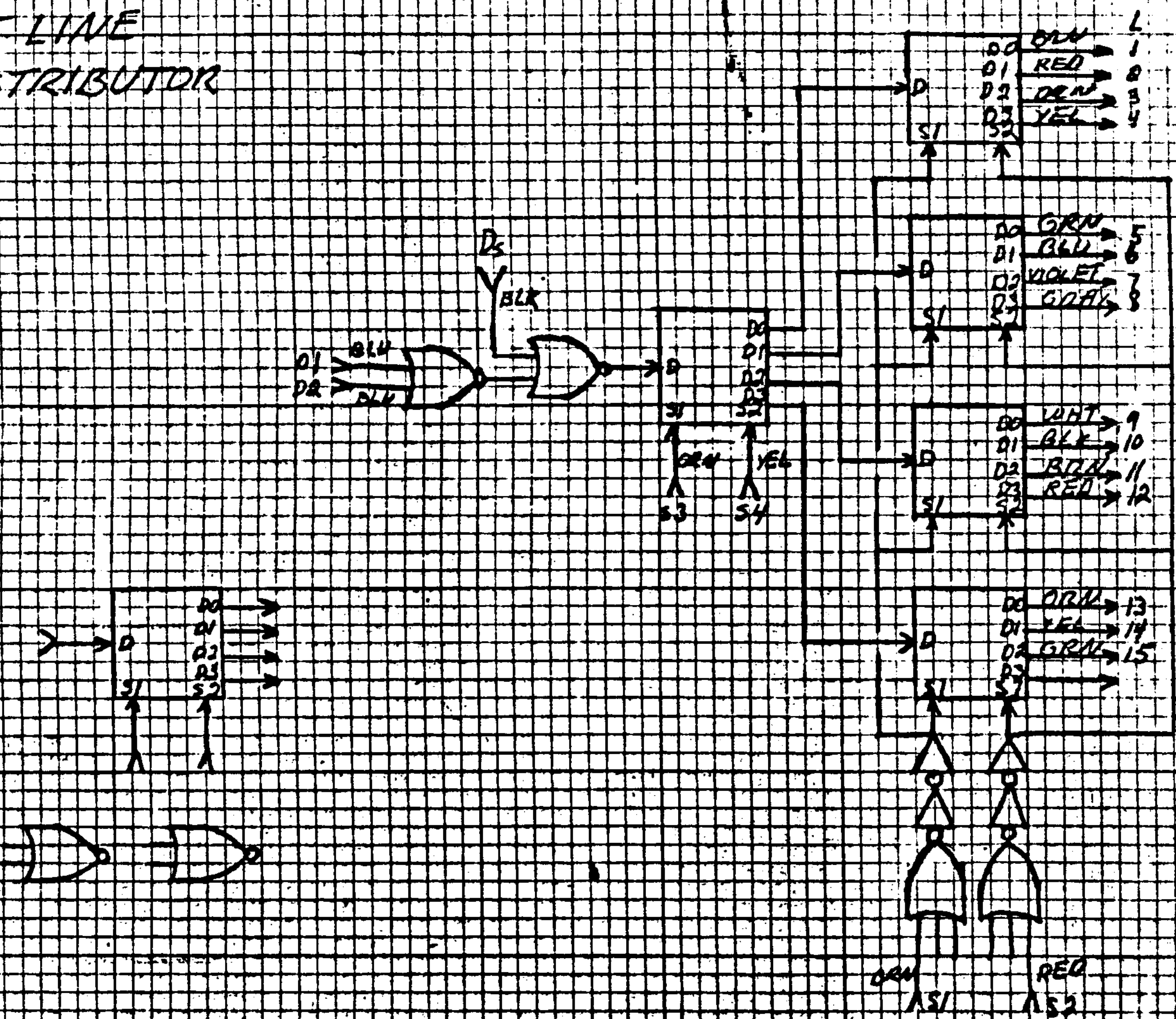


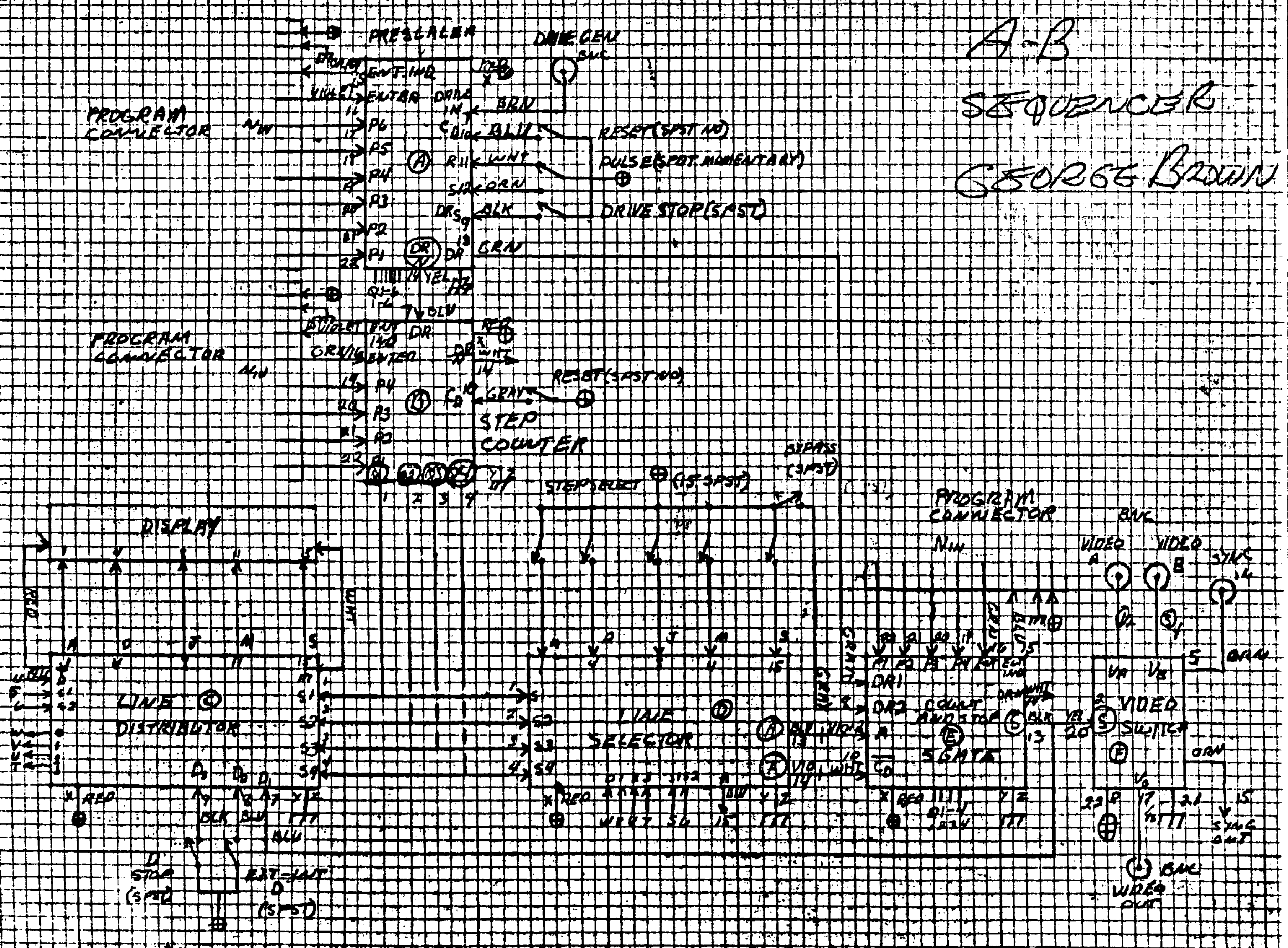
A-B SEQUENCER



A-B SEQUENCER

15 LINE
DISTRIBUTOR




A-B
SEQUENCER
GEORGE BROWN
PRESCALER
DRIVE GEN
BNC
PROGRAM CONNECTOR
RESET (SPST NO)
PULSE (SPDT MOMENTARY)
DRIVE STOP (SPST)
STEP COUNTER
RESET (SPST NO)
STEP SELECT
BYPASS (SPST)
DISPLAY
LINE DISTRIBUTOR
LINE SELECTOR
COUNT AND STOP
GATE
VIDEO SWITCH
PROGRAM CONNECTOR
VIDEO A
VIDEO B
SYNC
VIDEO OUT
SYNC OUT
STOP (SPST)
RED
WHT
BLK
BLU
GRN
BRN
GRAY
ORN

VERNON RoyAL LINE R 2470-10 10 Squares to the inch

A-B SEQUENCER

